

PUBLIC HEALTH DEPARTMENT.

REPORT

ON THE HEALTH OF THE

CITY OF LIVERPOOL

DURING THE YEAR

— 1930 —

BY

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LIVERPOOL.

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- Tables of Population, Births, Deaths, Infantile Mortality and Infectious Sickness. Tables A, B, C and D.
- Table of Total Deaths registered in the City. Table E.
- Plan of Liverpool, showing Birth, Death and Infant Mortality Rates, and Population per acre of Districts.

PREFACE.

The birth rate for the year 1930 was 21·5 per thousand of the estimated population, as compared with 21·6 for 1929, and an average of 22·5 for the previous five years. This is identical with the lowest rate hitherto recorded for Liverpool in the year 1918. The birth rate for the whole of England and Wales for the year 1930 was 16·3 per thousand of the population.

The general death rate of the city was 12·8 per thousand of the population, compared with 15·1 in the previous year, and is the lowest rate on record. The lowest death rate previously recorded was in 1928, when it was 13·2. The death rate for England and Wales was 11·4.

The infantile mortality rate was 82 per thousand births, and this also is the lowest rate ever recorded for Liverpool. The previous lowest figure was 94 per 1,000 births for the years 1927 and 1928. The infant mortality rate for England and Wales in 1930 was 60 per 1,000 births.

On the whole, therefore, the health of the city was most satisfactory during the year, notwithstanding a severe outbreak of diphtheria, which taxed the accommodation in the infectious hospitals to its fullest capacity.

The estimate of the population is based on the census taken in 1921, as the results of the census taken on the 26th April, 1931, are not yet available. Many changes have taken place during the past ten years in regard to the housing of the people and the removal of many families from the central areas of the city to the outlying districts, where a large number of new houses have been erected by the Corporation, and it is difficult therefore to say to what extent the estimate of the population in the various districts can be relied upon; but a correction will be made when the results of the recent census are made known.

On the 1st April, 1930, the West Derby Board of Guardians ceased to function, and their work was transferred to the Corporation in

accordance with the provisions of the Local Government Act, 1929. A brief description of the various changes will be found in the report, but the annual report relating to the work carried on in the transferred institutions will be published separately.

The new city abattoir is rapidly nearing completion, and it is hoped that it will soon be ready for occupation. A detailed account of this establishment will be found on page 202, together with a plan showing the outline of the premises.

An additional centre for the estimation of atmospheric pollution has been opened at the Carnegie Welfare building in Cambridge Street, which is more or less a residential area, and a comparison can now be made with the results obtained at the previous centre in Netherfield Road, which was known to be one of the worst districts in the city in regard to a smoke-laden atmosphere. The figures showing the comparison are given on page 187.

Definite progress has been made during the past year in respect to two large Unhealthy Areas, namely, Queen Anne Street Area and Gerard Street Area.

The Order in respect to Queen Anne Street Area was made on November 23rd, 1928, and the House of Lords allowed the Appeal made by the Minister of Health from an Order of the Court of Appeal, and as this case is of considerable importance the judgment is quoted on pages 246-252.

An important step in housing legislation was taken during the year, when the Housing Act of 1930 was passed, which alters materially the procedure for dealing with insanitary areas. The Gerard Street Areas were dealt with under this Act, and since the housing section of this report was written the Minister of Health has confirmed the Compulsory Purchase Order relating to the Scheme, with certain modifications, which will be embodied in the Order to be made by him.

A Report was submitted to the City Council indicating the measures proposed to be taken during the next five years in respect to the removal of insanitary property, and the provision of suitable dwellings for the dispossessed. Reference is made to this report on pages 256-258.

For the purpose of dealing with some of the unhealthy dwellings situated in different parts of the city, not so grouped together to be dealt with as a Clearance Area, and to relieve overcrowding, the City Council decided to erect 209 tenements in South Hill Road, and 200 tenements in Garston, and building operations have commenced in respect to the South Hill Road tenements. When these tenements are completed, some of the unhealthy dwellings will be dealt with by demolition order, and the tenants offered accommodation in these tenements.

Steady progress has been made in respect to repairs to dwelling-houses.

Up to the present, 19,397 houses have been built by the City Council, together with 169 flats, and it is anticipated that 13,000 houses will be built during the next five years.

A. A. MUSSEN,

Medical Officer of Health.

PUBLIC HEALTH DEPARTMENT,

MUNICIPAL BUILDINGS,

LIVERPOOL,

30th May, 1931.

STATISTICS

RELATING TO

BIRTHS, DEATHS, AND CAUSES OF DEATH, &c.,
ZYMOTIC DISEASES AND THEIR INCIDENCE.

CITY OF LIVERPOOL.

SUMMARY

OF

VITAL STATISTICS FOR 1930.

Area ... 24,772 Acres (39 sq. miles)

Population (Census 1921) ... 805,046

do. (estimated to middle of June, 1930) ... 879,657

Births ...	18,881	Birth rate ...	21·5	} per 1,000 of the population
Deaths (all causes) ...	11,288	Death rate ...	12·8	

Do. (under 1 year of age)	1,544	Infant Mortality rate	} 82 per 1,000 births.

Do. from :—				
Seven principal Zymotic diseases	} 544	Zymotic death rate	} 0·62	} per 1,000 of the population
Phthisis		1,049			Phthisis death rate	} 1·19
Other forms of Tuberculosis	} 181	Non Pulmonary Tuberculosis death rate	} 0·20	
Cancer		1,080			Cancer death rate	} 1·23
Respiratory diseases	2,167	Respiratory death rate	} 2·46	

BIRTHS.

The number of births recorded during the year 1930 within the city was 18,881, equal to a rate of 21·5 per 1,000 of the population, the average of the previous five years (1925-1929) being 22·5. Of the total births, 9,655 were males, and 9,226 were females. The number of illegitimate births was 879, or 4·6 per cent. of the total births, 466 being males and 413 females.

The Registrar General intimated that 285 births (160 males and 125 females) should be added to and 593 births (289 males and 304 females) deducted from the total number of births registered in the city. These corrections for transferable births having been made, the net figures are as given above.

The birth rate in the City of Liverpool was considerably above the average of the great towns, which was 16·6 per 1,000 of the population, as well as of England and Wales taken as a whole, where the rate was 16·3 per 1,000 for the year 1930.

The number of still-births registered was 774, as shown in the accompanying table. This represented 4·1 per cent. of the total births registered and '88 per 1,000 of the estimated population.

LIVE-BIRTHS.

				Males.	Females.	Total.
Legitimate	...	...	...	9,189	8,813	18,002
Illegitimate	...	...	...	466	413	879
				9,655	9,226	18,881

STILL-BIRTHS.

				Males.	Females.	Total.
Legitimate	...	...	...	397	323	730
Illegitimate	...	...	...	28	16	44
				425	349	774

BIRTHS AND DEATHS IN DISTRICTS.

The following table shows the population, number of births and deaths, and the rate per 1,000 in each district of the city for the year 1930 :—

Districts.	Estimated Population 1930.	BIRTHS.		DEATHS.	
		Number of Births.	Rate per 1,000.	Number of Deaths.	Rate per 1,000.
EXCHANGE	83,658	2,470	29·5	1,409	16·8
ABERCROMBY	45,715	909	19·9	660	14·4
EVERTON	118,622	2,822	23·8	1,564	13·1
KIRKDALE	65,193	1,465	22·4	954	14·6
EDGE HILL	92,994	1,886	20·3	1,126	12·1
TOXTETH	136,024	3,016	22·2	1,831	13·5
WALTON	92,000	1,445	15·7	1,061	11·5
WEST DERBY	98,708	1,810	18·3	1,140	11·5
WAVERTREE	95,797	1,543	16·1	1,018	10·6
FAZAKERLEY	43,525	1,426	32·8	448	10·3
WOOLTON	7,421	89	12·0	77	10·4
	879,657	18,881	21·5	11,288	12·8

The following table shows the population, births and deaths, with birth and death rates during the last 20 years (1911 to 1930) :—

Year.	Population.	No. of Births.	Birth Rate per 1,000 of Population.	No. of Deaths.	Death Rate per 1,000 of Population.
1911	747,998	22,493	30·0	14,607	19·5
1912	754,143	22,233	29·5	13,364	17·7
1913	*760,341	22,555	29·6	13,658	18·0
1914	773,467	23,065	29·8	15,046	19·4
1915	779,535	21,586	27·7	14,478	18·6
1916	785,657	20,679	26·3	13,943	17·7
1917	791,828	17,906	22·6	13,093	16·5
1918	798,048	17,133	21·5	15,267	19·1
1919	804,316	18,694	23·2	13,283	16·5
1920	810,632	25,039	30·9	12,852	15·8
1921	817,000	21,904	26·8	11,666	14·3
1922	823,416	21,467	26·1	11,992	14·6
1923	829,881	20,695	24·9	11,405	13·7
1924	836,396	20,559	24·6	11,390	13·6
1925	842,968	19,592	23·3	11,902	14·1
1926	849,593	19,792	23·3	11,626	13·7
1927	856,266	19,020	22·2	11,874	13·9
1928	*866,000	19,120	22·1	11,432	13·2
1929	872,802	18,888	21·6	13,181	15·1
1930	879,657	18,881	21·5	11,288	12·8

* City area extended

CITY OF LIVERPOOL.

COMPARATIVE VIEW OF THE BIRTH AND DEATH RATES PER 1,000 IN THE DIFFERENT DISTRICTS OF THE CITY DURING THE YEAR 1930.

Birth Rates

per 1,000 of Population

Fazakerley 32.8
Exchange 29.5

Everton 23.8

Kirkdale 22.4

Toxteth 22.2

Edge Hill 20.3

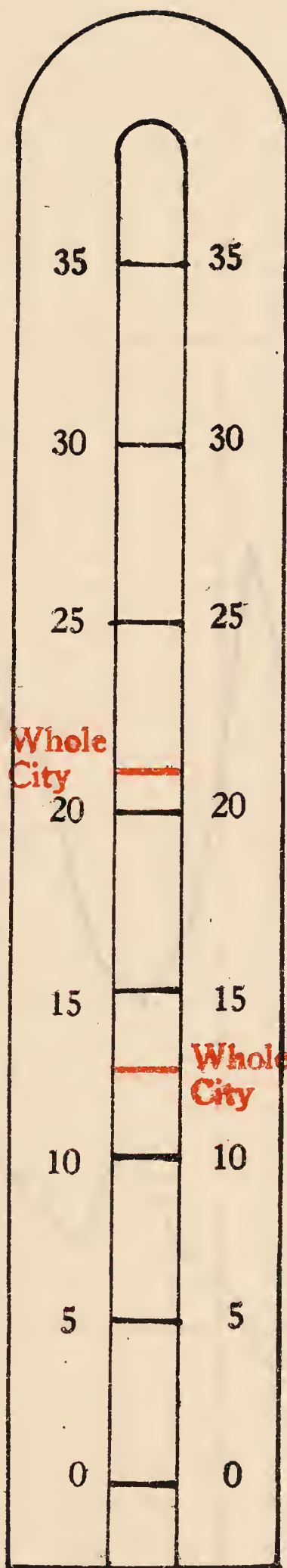
Abercromby 19.9

West Derby 18.3

Wavertree 16.1

Walton 15.7

Woolton 12.0



Death Rates

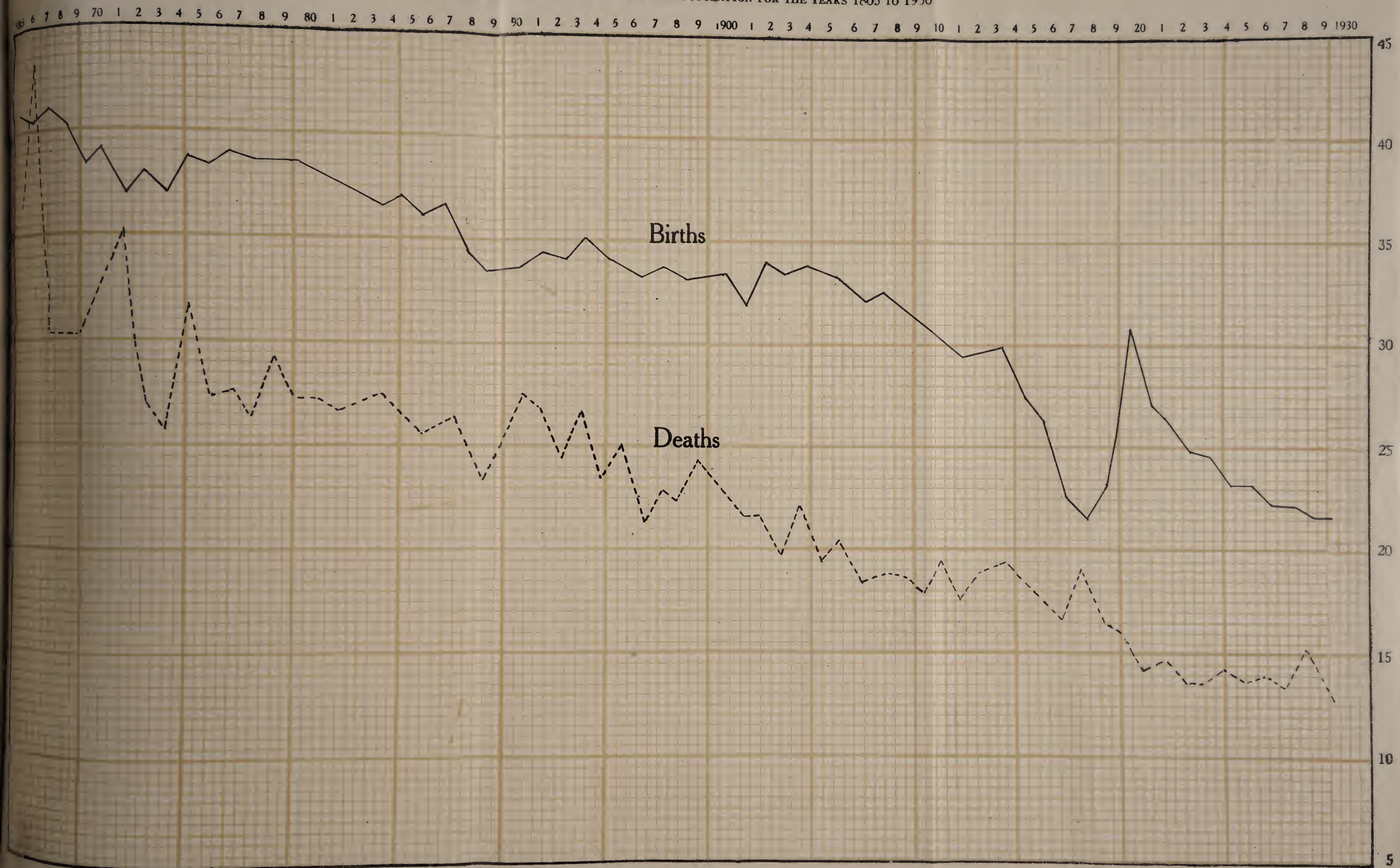
per 1,000 of Population

Exchange 16.8
Kirkdale 14.6
Abercromby 14.4
Toxteth 13.5
Everton 13.1
Edge Hill 12.1
Walton 11.5
West Derby 11.5
Wavertree 10.6
Woolton 10.4
Fazakerley 10.3

DEATHS IN PUBLIC INSTITUTIONS ARE TRANSFERRED TO THE DISTRICTS WHENCE THE PATIENTS CAME.

CITY OF LIVERPOOL

BIRTH AND DEATH RATES PER 1000 OF THE POPULATION FOR THE YEARS 1865 TO 1930



Time interval between two consecutive observations (hours)

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24



DEATHS.

The total deaths registered in the city during the year numbered 11,882. Of these deaths 993 were those of non-residents, chiefly occurring in public institutions, nursing homes, &c., and these were excluded from the returns. On the other hand, the deaths of 399 Liverpool residents which occurred in other districts and the County Mental Hospitals, &c., were included in the returns for the year.

This gives a corrected number of deaths of 11,288, being 5,917 males and 5,371 females, for the year, equal to a death rate of 12·8 per 1,000 of the population, this being the lowest death rate recorded for the city. The death rates for England and Wales and the great towns during the year were 11·4 and 11·5 respectively.

It will be seen that in the five years (1911-1915) the average death rate was 18·6 per 1,000, whilst during the last five years (1926-1930) the average rate was 13·7 per 1,000.

A comparison of the table on page 11 with previous reports will show that this improvement is not confined to the infant mortality nor to the mortality at any particular age, but is a general improvement affecting the whole of the population. It is plain that any variation in the *proportions* living at the respective age-periods would affect the death rate, and this with absolutely no change whatever in the condition of municipal sanitation. These proportions, however, vary very slowly and very slightly year by year in each district, so that yearly comparisons of the mortality rate of the same district may be fairly made, but one district should not be put into comparison with another unless the age and sex conditions of each are known, and the necessary corrections made.

CAUSES OF DEATH.

Full details as to the causes of death are set forth in Table *E* in the Appendix; in the same table the age at which each death took place and the district in which it occurred will also be found.

The following table gives a classification of the causes of death during the four quarters of the year, shown under 15 classes, and the number of deaths at each age-group :—

CLASSES.					QUARTERS.				YEAR 1930.
					March	June	Sept.	Dec.	
ALL CAUSES	...	...	...	...	3,139	2,733	2,205	3,211	11,288
I.	Infective Diseases	...	...	...	560	501	347	560	1,968
II.	General Diseases	...	...	...	367	352	342	373	1,434
III.	Dis. of Nervous System	...	...	...	203	207	173	196	779
IV.	do. Circulatory do.	...	...	...	582	486	466	588	2,122
V.	do. Respiratory do.	...	...	...	753	476	246	692	2,167
VI.	do. Digestive do.	...	...	...	123	169	154	217	663
VII.	do. Genito Urinary do.	...	...	...	117	122	109	136	484
VIII.	The Puerperal State	...	...	...	19	28	10	18	75
IX.	Dis. of Skin, etc.	...	...	...	16	19	9	14	58
X.	do. Bones, etc.	...	...	...	8	9	5	7	29
XI.	Malformations	...	...	...	11	24	21	23	79
XII.	Dis. of Early Infancy	...	...	...	162	130	133	156	581
XIII.	Old Age	...	...	...	131	96	62	130	419
XIV.	External Causes	...	...	...	84	111	125	95	415
XV.	Ill defined Causes	...	...	...	3	3	3	6	15
Ages at Death.	{	Under 1 year	...	...	369	337	287	551	1,544
		1 to 5 years	...	...	169	190	125	272	756
		5 to 10 years	...	...	103	84	48	93	328
		10 to 15	„	...	34	55	45	42	176
		15 to 20	„	...	67	72	73	74	286
		20 to 25	„	...	76	76	66	74	292
		25 to 45	„	...	400	339	253	308	1,300
		45 to 65	„	...	863	761	555	772	2,951
		65 and upwards	...	...	1,058	819	753	1,025	3,655

ANALYSIS OF DECLINE IN MORTALITY.

The accompanying tables (pages 9 and 10) show the deaths that have occurred in the city of Liverpool during the past 60 years. These have been separated into five principal classes of disease that are likely to be affected by the activities of the Health and other Municipal Departments, namely, "infective" diseases, tubercular diseases, respiratory diseases (including influenza), and digestive diseases (including diarrhœa and enteritis). These classes include the greater part of the diseases of infective origin. The deaths from cancer are placed in a separate column.

Despite the very great increase in population since 1871, the population having nearly doubled since then, the actual numbers of deaths per annum have fallen from an average of 14,700 in the decennium 1871-1880 to 11,288 in the year 1930. The general death rate has fallen from 28·5 to 12·8 per thousand, a fall of 55 per cent.

The greatest proportional decline has been experienced in the group of infective diseases, which includes all the infectious diseases with the exception of influenza; the decline has been steady and uniform, and the deaths now registered in this group exhibit a decline of no less than 85 per cent. during the 60 years.

A similar steady decline has been shown by the tubercular diseases, which have fallen to 40 per cent. of the earlier figure. These deaths now account for just 10 per cent. of the total.

In the group of respiratory diseases, although the death rate has been almost halved during the period under review, namely, between 1871-1880 and 1930, the decline has not been continuous; rises occurred in 1881-90 and in 1911-20, and again in 1929, due in all cases to the prevalence of influenza. Although a marked decline in respiratory deaths has occurred, this decline is not commensurate with that recorded in deaths from all causes.

Digestive diseases, of which diarrhœa and other digestive diseases of infants form the most important section, showed at first a slight decline from 1871 to 1890; in 1891-1900 there was a rise to 107 per cent. of the rate experienced in 1871-80, taking the latter rate as equal to 100. From that time on there has been a most marked and rapid decline to 27 per cent. of the 1871-80 rate of mortality. This decline coincides in time with the great efforts that have been put forward in this city for the prevention of infantile mortality.

In contrast, however, there has been a considerable increase in the deaths from cancer during the past 60 years (see pages 9 and 71). The rate of mortality is now more than three times as high as in the seventies of last century. This increase is, however, mainly due to the increasing longevity of the people.

If the general rate of mortality experienced in 1871-80 had prevailed during the year 1930, there would have been 25,070 deaths instead of 11,288—the number actually recorded, a saving of 13,782 lives being thereby effected.

Years.	(a) Infective diseases (less Diarrhoea and Influenza).	(b) Tubercular diseases.	(c) Respiratory diseases (including Influenza).	(d) Digestive diseases (including Diarrhoea).	Total Deaths from Classes (a),(b), (c) & (d)	(e) Cancer.	Total Deaths from all causes.
1871-1880	27,205	19,869	29,763	14,747	91,584	2,015	147,005
1881-1890	19,748	17,870	32,507	13,186	86,311	2,820	146,195
1891-1900	13,515	16,714	35,819	18,491	84,539	4,223	145,522
1901-1910	13,967	16,054	32,995	18,163	81,179	6,480	150,962
1911-1920	10,417	14,946	36,480	12,282	74,125	7,603	137,223
1921-1930	7,831	12,664	29,447	8,184	58,126	9,852	117,756
1930	663	1,230	2,242	663	4,798	1,080	11,288

DEATHS EXPRESSED AS A PERCENTAGE OF TOTAL DEATHS FROM ALL CAUSES (Proportionate Mortality).

1871-1880	19.2	13.5	20.2	10.0	62.3	1.4	100.0
1881-1890	14.1	12.7	23.2	9.4	59.4	2.0	100.0
1891-1900	9.3	10.8	24.6	12.7	57.4	2.9	100.0
1901-1910	8.6	10.6	21.8	12.0	53.0	4.3	100.0
1911-1920	7.9	10.9	27.3	8.9	55.0	5.5	100.0
1921-1930	6.6	10.7	25.0	6.9	49.4	8.4	100.0
1930	5.9	10.1	19.9	5.9	42.5	8.1	100.0

DEATH RATES PER 1000 POPULATION.

Years.	(a) Infective diseases (less Diarrhoea and Influenza).	(b) Tubercular diseases	(c) Respiratory diseases (including Influenza).	(d) Digestive diseases (including Diarrhoea).	Total Deaths from Classes (a), (b), (c) & (d)	(e) Cancer.	Total Deaths from all causes
1871-1880	5.2	3.6	5.7	2.8	17.4	0.4	28.5
1881-1890	3.6	3.2	5.9	2.4	15.6	0.5	26.1
1891-1900	2.2	2.7	5.9	3.0	13.8	0.7	23.9
1901-1910	1.9	2.2	4.5	2.5	11.1	0.9	20.0
1911-1920	1.3	1.9	4.7	1.6	9.8	1.0	18.1
1921-1930	0.9	1.4	3.3	0.9	6.6	1.1	13.4
1930	0.7	1.4	2.5	0.7	5.4	1.2	12.8

DEATH-RATES EXPRESSED AS A PERCENTAGE OF THE RATES EXPERIENCED IN 1871-1880 (Index Numbers).

1871-1880	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1881-1890	69.0	88.0	104.0	85.7	89.1	125.0	91.0
1891-1900	42.0	75.0	104.0	107.2	79.3	175.0	84.0
1901-1910	36.0	61.0	79.0	89.3	64.3	225.0	70.0
1911-1920	26.0	50.0	83.0	56.7	56.0	250.0	67.0
1921-1930	17.1	40.0	58.8	36.8	38.0	280.0	47.0

TABLE SHOWING THE ANNUAL RATE OF MORTALITY PER 1,000 AS WELL AS THE TOTAL NUMBER OF DEATHS AT EACH OF TWELVE AGE-PERIODS DURING THE YEAR 1930 IN LIVERPOOL.

1930.	Under 1 year.	1 to 2	2 to 5	5 to 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	80 and up- wards.	Total at all Ages.
Rate of Mortality per 1,000 living at ages indicated.	* 82.0	17.5	7.1	3.5	2.6	4.1	4.7	8.7	20.3	43.8	111.8	227.4	12.8
Total Number of Deaths at each Age-Period.	1544	420	336	328	462	582	599	979	1521	1858	1909	750	11288
Approximate Population	18881	24020	47121	91870	176611	143255	127790	112460	74899	42376	17076	3298	879657

* Column I. indicates the rate of mortality under one year per 1,000 births during the year.

DEATHS IN PUBLIC INSTITUTIONS.

In Liverpool the number of deaths which take place in Public Institutions is large, and this tends to show the proportion of people who in times of sickness have recourse to public and charitable institutions in the city, and no doubt also suggests that the institutions have a wide reputation and attract sufferers not only from within the city, but from a distance, as shown by the number of non-resident deaths.

The deaths in institutions during the year numbered 6,447, and included 993 persons who were non-residents in the city area. The number of deaths in the various institutions are shown in the following table :—

					Total Deaths.	Deaths of non-residents
Mill Road Infirmary	...	...	...	...	826	38
Walton Hospital	...	...	...	...	1,656	333
Smithdown Road Hospital	...	...	...	...	813	15
Alder Hey Hospital	...	...	...	...	710	64
Belmont Road Institution	...	...	...	...	296	33
Kirkdale Homes	...	...	...	...	195	17
Royal Infirmary	...	...	...	...	356	111
David Lewis Northern Hospital	...	...	...	...	278	112
Royal Southern Hospital	...	...	...	...	179	41
Stanley Hospital	...	...	...	...	110	19
Royal Liverpool Children's Hospital	...	...	...	...	160	27
Maternity Hospital	...	...	...	...	54	11
Hospital for Women	...	...	...	...	13	12
Samaritan Hospital	...	...	...	...	1	—
Consumption Hospital	...	...	...	...	28	21
Hahnemann Hospital	...	...	...	...	17	1
Eye and Ear Infirmary	...	...	...	...	12	8
Garston Hospital	...	...	...	...	16	—
Carried forward					5,720	863

						Total Deaths.	Deaths of non-residents .
Brought forward ...						5,720	863
City Hospital North	...	...	...	...	...	17	2
Do. South	...	...	...	...	...	16	1
Do. East	...	...	...	...	...	78	2
Do. Fazakerley	...	...	...	...	...	123	9
Do. do. Annexe	...	...	...	...	...	46	3
Do. Sparrow Hall	...	...	...	...	...	12	—
Sanatorium Fazakerley	...	...	...	...	...	76	—
Do. Broad Green	...	...	...	...	...	144	1
St. Joseph's Home	...	...	...	...	...	28	3
Home for Incurables	...	...	...	...	...	6	2
House of Providence	...	...	...	...	...	3	2
Tuebrook Villa Asylum	...	...	...	...	...	1	1
Turner Memorial Home	...	...	...	...	...	6	1
St. Augustine's Home	...	...	...	...	...	21	5
H.M. Prison, Walton	...	...	...	...	...	3	1
Other Institutions (Nursing Homes, etc.)	...	...	...	...	...	147	97
						<u>6,447</u>	<u>993</u>

Of the above deaths 4,496 took place in the transferred poor-law institutions, 1,224 in voluntary hospitals, 512 in city hospitals, and 215 in other institutions.

The following table shows the total number of deaths in public institutions during the years 1925 to 1930 :—

1925.	1926.	1927.	1928.	1929.	1930.
6,017	6,083	6,123	6,195	7,334	6,447

INFECTIOUS SICKNESS.

Liverpool is closely associated with all parts of the world by reason of the large volume of shipping continually arriving in the port, and in consequence the city is peculiarly liable to the importation of various forms of infectious disease. The measures which have been adopted have been successful in preventing any outbreaks of a serious nature obtaining a footing in the city.

The following table shows the number of cases of infectious disease notified during 1930, the case-rate per 1,000 of the population, the number of deaths registered from these diseases, the death rates per 100,000 of the population, and the percentage proportion of deaths to cases.

	Smallpox.	Enteric Fever.	Scarlet Fever.	Measles.	Diphtheria.	Puerperal Fever.	Erysipelas.	Cerebro-spinal Fever.	Poliomyelitis and Polioencephalitis.	Encephalitis Lethargica.	
Cases	1	60	3,069	5,966	4,023	43	720	21	14	27	15
Case rate per 1,000 ...	—	0·07	3·49	6·78	4·57	2·3†	0·82	0·02	0·02	0·03	0·04
Deaths	—	1	35	170	236	16	24	17	6	18	1
Death rate per 100,000	—	0·11	4·0	19·3	26·8	85*	2·7	1·9	0·68	2·0	0·1
Percentage of Deaths to cases	—	1·23	1·14	2·8	5·9	37·2	3·3	81·0	42·8	25·8**	0·7

* Death rate per 100,000 Births.

† Case rate per 1,000 B P

** Based on 7 deaths of acute cases

PLAGUE.

No cases of plague occurred in the city during the year.

SMALLPOX.

There was only one case of smallpox reported to the Health Department during the year. The particulars of the case are as follows:—

The patient felt unwell on July 18th and 19th, after return from a holiday in Belgium, where she had been for eight days.

A rash appeared on July 21st, and she was notified and removed to hospital on July 24th.

This patient visited her cousin, who lived in Wallasey, on July 5th, and who was at that time unwell, and had a slight eruption, which subsequently proved to be smallpox, but he did not consult a doctor at the time, as he thought it was a slight attack of influenza.

This unrecognised case in Wallasey gave rise to three other cases, one of which died of hæmorrhagic smallpox.

The usual disinfection was carried out, and all contacts immediately revaccinated and kept under observation for the usual period. No further cases developed.

The following figures for England and Wales shew a gradual and remarkable spread of an exceedingly mild type of smallpox, only a few deaths occurring amongst the thousands of cases reported.

Year.			Cases.		Deaths.
1924	...	...	3,792	...	13
1925	...	...	5,365	...	9
1926	...	...	10,205	...	19
1927	...	...	14,769	...	49
1928	...	...	12,433	...	53
1929	...	...	10,975	...	39
1930	...	...	11,855	...	28

(Extracted from the Registrar General's Quarterly Returns.)

The striking increase in the disease may be attributed to the general neglect of vaccination in the invaded districts. It may be appropriate to urge that the only safeguard against infection is vaccination and re-vaccination.

On account of its world-wide trade, Liverpool must always be one of the channels through which the severe types of smallpox may be imported. Furthermore, the constantly moving population—inwards and outwards—renders the city particularly liable to infection.

In Liverpool, however, the child population is relatively well vaccinated, as the most recent available figure for 1929 shows that approximately 69·8 per cent. of the children born in Liverpool have been successfully vaccinated. This is satisfactory when compared with the rest of the country, and reflects credit on the public vaccinators and others concerned in the administration of the Vaccination Acts.

The appended figures show the primary vaccinations during the last six years in the city of Liverpool:—

	1924.	1925.	1926.	1927.	1928.	1929.
1.—No. of Children born ...	20,559	19,592	19,792	19,020	19,120	19,512
2.—No. of primary vaccinations	15,246	13,976	14,091	15,572	13,736	13,812
3.—No. of Exemption Certificates granted	1,263	1,408	1,394	1,296	1,596	1,512
4.—No. of Certificates of insusceptibility sent ...	125	111	123	102	145	91

TYPHUS FEVER.

No case occurred in Liverpool during 1930, and no indigenous cases have occurred during the course of the past twelve years.

ANTHRAX.

The importation of large amounts of animal products, which are handled in transit to stores or manufactories, has associated with it the risk of human infection with the anthrax bacillus, causing a condition known as malignant pustule or cutaneous anthrax.

It is of interest to note that, owing to the facilities now available, many workers, when they develop signs of suspected anthrax, avail themselves at once of these opportunities for prompt diagnosis.

During the year 1930, nine cases of this disease were notified to the Health Department and admitted to Liverpool City Hospitals. Of these patients only three were associated with work in Liverpool, one lived in Bootle, whilst four came from Runcorn, where three of them had been engaged in various processes of the tanning industry; another case was from Litherland.

The site of the pustule was usually on an exposed part of the person, either the face (5), or neck (4).

The occupations followed were as follows:—Four were dock labourers engaged in the discharge of ships, landing dry hides from East Africa and other places. One was a lorry driver frequently carrying hides in his van. Four patients were sent in from Runcorn; these were employed in tanneries and had handled hides from various countries. There were two deaths.

During the course of the year 53 persons voluntarily came to the Fazakerley Hospital for examination of suspicious “pimples” and the like. Two of these proved to be anthrax and were detained. In addition to these, 15 patients were brought in as suspicious cases for investigation.

One man who had been in close contact with anthrax infected cattle was admitted for observation and protective injection of serum.

Conditions sent in as suspect anthrax infections included carbuncle, boils, simple pustules, cellulitis, and one patient suffering from accidental vaccination on the lip.

Favourable reports on the results of serum treatment are now being obtained at the City Hospital, Fazakerley, where cases come under observation soon after infection and the diagnosis can be promptly verified. It is, therefore, the wish of the Health Authorities that cases or suspected cases of anthrax be sent without delay to this hospital for admission, when the necessary steps will be taken to diagnose the illness and place the patient under serum treatment.

The fatal cases frequently quoted emphasise the importance of early diagnosis and serum treatment in all cases of this disease.

The business firms connected with the hide and skin trade in Liverpool and neighbourhood have recognised the importance of the points above enumerated in regard to early diagnosis and serum treatment, and have conferred with the Liverpool Health Authorities with the object of taking further measures to educate the workers as to the risks involved in handling goods of animal origin, particularly hides and skins.

Posters have been printed on the subject and are affixed in suitable places. A pocket card has also been issued containing full information regarding the appearance and symptoms of cutaneous anthrax, and advice on the action to be taken. Arrangements are also made to admit all cases of anthrax or suspected anthrax direct to Fazakerley hospital.

Special arrangements have been made for the treatment of cases coming from districts outside Liverpool.

The question of the disinfection of hides and skins is still under consideration, but there are difficulties in evolving a method which will be successful, not only in destroying the anthrax spore without damaging the material, but one which can be utilised on a commercial scale.

In order to eliminate as far as possible the handling of hides by dock labourers and others, the hide trade connected with this Port has agreed not to open bales of China hides at the docks beyond what is necessary for sampling purposes.

The disinfection of imported dangerous wools at the Government Wool Disinfection Station, Love Lane, is still in progress, and the Liverpool Port Sanitary Authority assists by having samples of the untreated wools and those which have passed through the disinfecting process examined by the City Bacteriologist; this helps to assist in confirming and controlling the Duckering disinfecting process. During the year, 66 samples were examined after disinfection, and all were found to be free from anthrax; three of the original untreated samples showed evidence of positive infection.

The Ministry of Agriculture has drawn attention to the danger to farm animals in Great Britain in connection with the shipment in foreign ports of commodities containing the spores of anthrax. The disease is prevalent in animals in many parts of the world from which supplies of raw hides, hair, wool and feeding stuffs, e.g., cattle cake and the ingredients thereof, are drawn. Infection is conveyed to the farm by means of these and other animal substances from foreign countries, especially those places where inadequate precautions are taken or where none exist.

Anthrax spores may be shaken from the above-mentioned animal products and may become mixed with foodstuffs or hold-sweepings, and thus infection may be indirectly conveyed to animals of the farm.

The suggestion is made that special precautions should be adopted so that dried hides, wool, hair, &c., should not be carried, mixed with or be placed on top of grain or feeding stuffs, and that the holds which have contained animal products of this nature should be thoroughly disinfected; further, that the sweepings of holds containing grain, etc., should not be mixed with other foodstuffs.

The Ministry of Agriculture recommends the following process for disinfection :—

“Thoroughly sprinkle the compartment to be disinfected with an antiseptic solution to prevent the raising of dust. Sweep down the sides and floors; carefully collect all dust and refuse therefrom and destroy by fire. Then wash the sides and floors with strong solution of miscible carbolic acid (not less than 5 per cent. of acid) or a 3 per cent. solution of formalin, which contains not less than 40 per cent. of formaldehyde. Persons employed on the work should wear indiarubber gloves as a protection against inoculation, and also respirators.”

The spores of anthrax bacillus have great resisting power, and may remain active for years unless measures are taken to destroy them.

TABLE GIVING PARTICULARS OF THE INCIDENCE OF ANTHRAX CASES IN THE UNITED KINGDOM, NOTIFIED TO THE CHIEF INSPECTOR OF FACTORIES, UNDER SECTION 73 OF THE FACTORY AND WORK-SHOP ACT, 1901.

ANTHRAX.	1929	1928	1927	1926	1920	1910	1900
Cases Notified ...	*40-(5)	45-(8)	31-(2)	38-(3)	48-(11)	51-(9)	37-(7)
Wool	16-(2)	14-(2)	18-(1)	15-(2)	25-(7)	28-(3)	10-(2)
Horsehair	3	4-(1)	3-(1)	8-(1)	5-(1)	6-(1)	12-(3)
Hides and Skins ...	20-(3)	24-(3)	9	12	17-(3)	14-(3)	9-(1)
Other Industries ...	1	3-(2)	1	3	1	3-(2)	6-(1)

Extracted from the Annual Report of the Chief Inspector of Factories for the year 1929.

*The principal figures relate to cases and the bracketed figures to deaths.

PSITTACOSIS.

The existence of acute illness in man due to the infection from sick parrots, or similar birds, has been recognised for a long time, and its frequent association with birds of the parrot tribe has caused the condition to be named "Psittacosis" (Lat. psittacus—parrot).

A considerable number of cases of this disease has occurred in England and Wales during the last two years. The disease is unfamiliar to the majority of medical practitioners, but nothing in the shape of an epidemic has been previously recorded. It is possible that a few unsuspected cases have occurred.

In July, 1929, and subsequent months, an outbreak of human cases of the disease occurred in the Argentine, and it was noticed that the cases were mostly associated with sick parrots presenting signs of nasal catarrh or diarrhœa. Enquiries showed that a large consignment of parrots had been imported into the Argentine from Brazil, and that there had been great mortality amongst them. Later, cases of illness in men occurred in various parts of the world, including Europe.

The first suspected human case in England occurred near Birmingham.

The onset of the disease is usually fairly acute, the symptoms being vague and consisting of malaise, feverishness, headache and chilliness. The lungs were involved in almost every case.

Liverpool had only six human cases, five of which were resident in one institution in the city. The cases were reported in January, 1930, some of them being severe and requiring hospital treatment: all recovered. With one exception all the Liverpool cases were associated with the handling of a green Amazon parrot which died.

Of the total cases (117) reported on by the Ministry of Health, and occurring in this country, 25 were fatal, giving a case mortality rate of 21·3 per cent.

The occurrence of these cases throughout the country resulted in the Ministry of Health prohibiting the importation of birds of the parrot species under the Parrots (Prohibition of Import) Regulations, 1930.

It would appear desirable that birds of this character should not be kissed or caressed or fed from the mouth owing to the grave danger of transmitting disease.

Prompt enquiry was made into all cases by the staff of the department, and there was no extension of the outbreak.

ENTERIC FEVER.

The decline in the prevalence of this disease which has been continuous for the past 35 years has now almost led to its extinction. The death rate has fallen since 1894 from 46 to 0·11 per 100,000; only one death occurred in the year; a man who was a farm labourer.

Sixty-five cases of enteric fever (including 36 cases of paratyphoid B.) were reported during 1930 in the city and port of Liverpool. Of these, 5 were imported from overseas, leaving 60 of indigenous origin, as against 28 in the preceding year. Of the cases from shipboard, one was from the United States, one from Bermuda, one from Buenos Aires, one from the West Coast of South America, and one from West Africa. No cases followed the consumption of shellfish. Four persons were infected whilst away on holidays or otherwise.

Of the cases of enteric fever reported in the past seven years 28·3 per cent. have been due to infection with the *Bacillus paratyphosus* B.

The result of inquiry into the probable causation of the reported cases is shown in the following table, the figures for the years 1925 to 1930 being shown for the purpose of comparison :—

CITY AND PORT OF LIVERPOOL. ENTERIC FEVER, 1925-30.

	CASES.						PERCENTAGE.				
	1925.	1926.	1927.	1928.	1929.	1930.	1925.	1926.	1927.	1928.	1929.
Imported by sea ...	14	12	14	11	5	5	29·2	24·0	17·5	27·5	17·9
Imported by land ...	3	3	2	4	8	4	6·2	6·0	2·5	10·0	28·6
Shell-fish ...	1	1	6	2	—	—	2·1	2·0	7·5	5·0	—
Direct infection ...	9	7	11	3	—	3	18·7	14·0	13·7	7·5	—
Direct infection from missed cases ...	1	1	4	1	—	1	2·1	2·0	5·0	2·5	—
Chronic carrier ...	—	—	1	—	1	—	—	—	1·2	—	3·5
Total in which source was ascertained ...	28	24	38	21	14	13	58·4	48·0	47·5	52·5	50·0
Central area ...	10	7	17	6	4	12	20·8	14·0	21·2	15·5	14·3
Outer area ...	10	19	25	13	10	40	20·8	38·0	31·2	32·5	35·7
Total in which sources were not ascertained	20	26	42	19	14	52	41·6	52·0	52·5	47·5	50·0
Total for city and port	48	50	80	40	28	65					
Infection due to B. Typhosus ...	43	37	60	34	20	28	89·5	74·0	75·0	85·0	71·4
B. Paratyphosus B ...	3	12	19	4	7	36	6·2	24·0	23·8	10·0	25·0
B. Paratyphosus A ...	2	1	1	2	—	—	4·2	2·0	1·2	5·0	—
Probably not typhoid	—	—	—	—	1	1	—	—	—	—	3·6

PARATYPHOID B. FEVER.

Prior to the Great War this type of enteric fever was not often distinguished. Latterly improved diagnostic facilities have led to its more frequent recognition and its differentiation from typhoid fever, formerly very prevalent in this city.

Small outbreaks of paratyphoid fever occurred in April and May, 1924, and in November and December, 1927, the latter affecting not only the northern half of Liverpool, but adjacent districts to the north. The numbers of cases reported in 1924 and 1927 were 24 and 19 respectively. In neither of these outbreaks was the medium of infection definitely ascertained.

During 1930 paratyphoid fever was again prevalent, some 36 cases being notified. The increase was confined to April, May, June and July, during which months 26 cases were notified. The cases were widely scattered through the city, but small and sometimes related groups occurred in Garston, Toxteth, Wavertree and Kensington. The central and northern areas of the city were much less affected.

No article of food supply common to more than a very few cases was discovered, and it seems probable that case to case infection or carriers were mainly instrumental in the causation of this outbreak.

UNDULANT FEVER.

A case of Undulant Fever was removed to the City Hospital, Fazakerley, in October, the patient having returned after a month's holiday in Prestatyn, Flintshire, on the 17th October, and being taken ill two days later. The symptoms resembled Typhoid Fever. Whilst staying in Wales he had partaken of milk obtained from the local farm. The Widal reaction showed agglutination to the *Brucella abortus* and to the *Brucella melitensis* in a dilution of 1 in 250.

DIPHTHERIA.

During 1930 4,023 cases of Diphtheria were reported, giving an attack rate of 4.57 per 1,000 of the population. Of these cases 236 proved fatal, making a fatality rate of 5.9 per 100 cases, and a mortality rate of 26.8 per 100,000 population. Although the case-rate shows a

considerable increase over the rates of the past ten years, the fatality rate remains low and but slightly above that recorded in 1928, namely, 5·3.

Table 1.

DIPHTHERIA IN THE CITY OF LIVERPOOL, 1920-1930

	1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.
Cases	1,654	1,182	953	993	1,105	1,504	1,519	1,664	1,902	2,336	4,100
Deaths	188	97	91	87	71	106	112	90	100	139	190
Case rate per 1,000 population ...	2·1	1·4	1·2	1·2	1·3	1·8	1·79	1·94	2·20	2·68	4·1
Death rate per 100,000 population	23·2	12·0	11·5	10·5	8·5	12·6	13·2	10·5	11·5	15·9	21·0
Fatality rate per 100 cases	11·4	8·2	9·5	8·8	6·4	7·0	7·4	5·4	5·3	5·9	5·1

The accompanying graphs show the great decline in the mortality of this disease during the period for which records for the City of Liverpool exist. Prior to 1857 there were no records of the deaths from diphtheria, the heading croup presumably containing all the deaths from this disease; from 1858 onwards the term diphtheria has steadily replaced croup as a certified cause of death, and the first graph accordingly gives the combined death rates from these two headings.

It will be observed that prior to 1890 severe epidemics of diphtheria occurred at intervals of four to seven years.

In 1890 diphtheria and membranous croup were made notifiable.

In 1895 treatment by anti-toxin was introduced during a rising wave of prevalence of diphtheria, and the fatality rate fell steadily from 1896 onwards till 1913, as the value of this method of treatment became more recognised. A severe outbreak occurred during the years 1917-1920, and occasioned a set-back in the decline of mortality, but the decline in fatality has continued since those years. The length of time elapsing between one epidemic and the next has been increased, and the height of the epidemic wave also greatly diminished.

CITY OF LIVERPOOL

DEATH-RATE FROM DIPHTHERIA (INCLUDING CROUP) PER 100,000 POPULATION 1858-1930.



The crosses indicate the average mortality of the decade centred round the cross; a line joining the crosses indicates the descending trend of mortality from this disease.

CITY OF LIVERPOOL

WEEKLY RECORD OF THE CITY OF LIVERPOOL, 1881

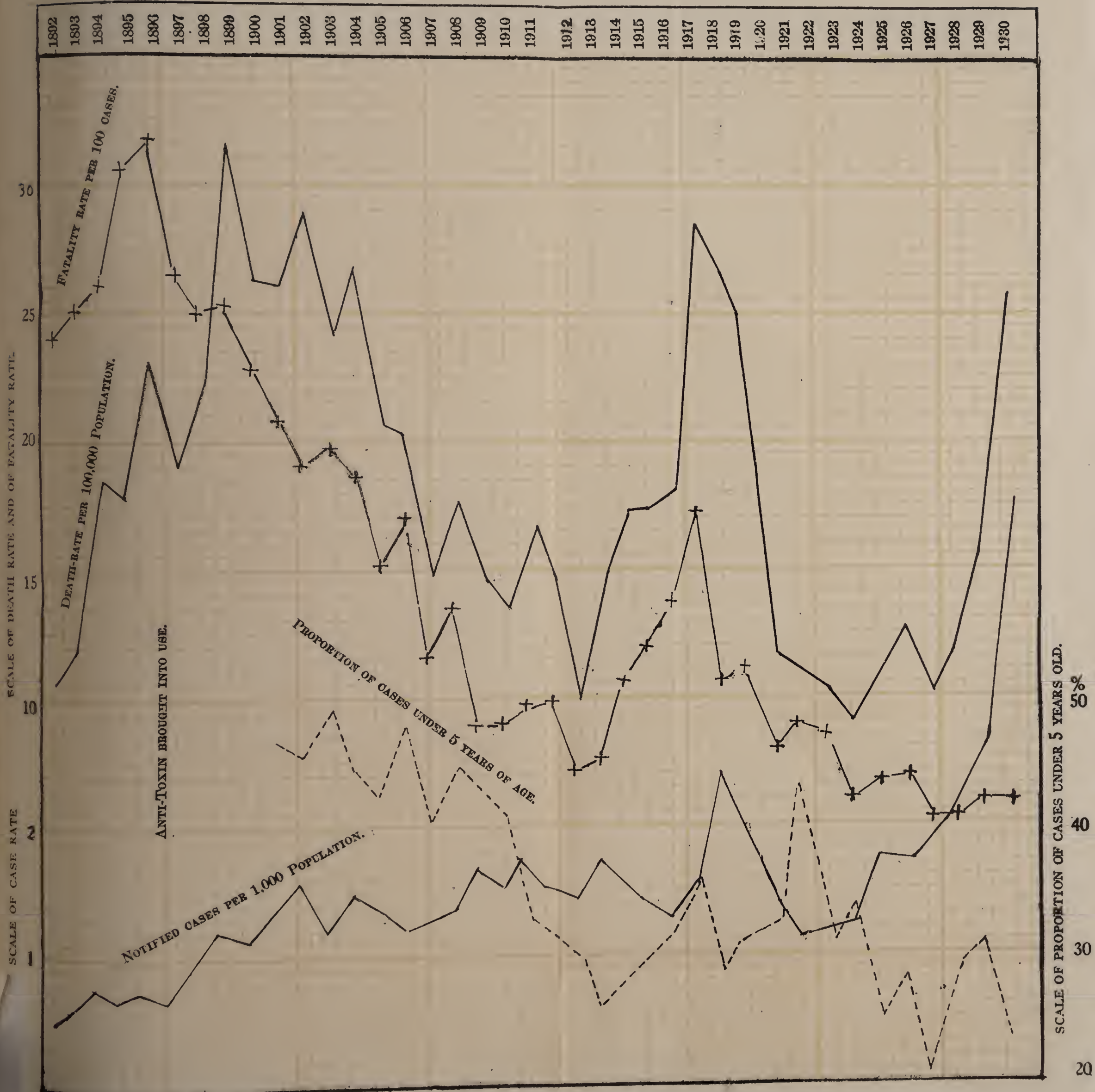
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WEEKLY RECORD OF THE CITY OF LIVERPOOL, 1881

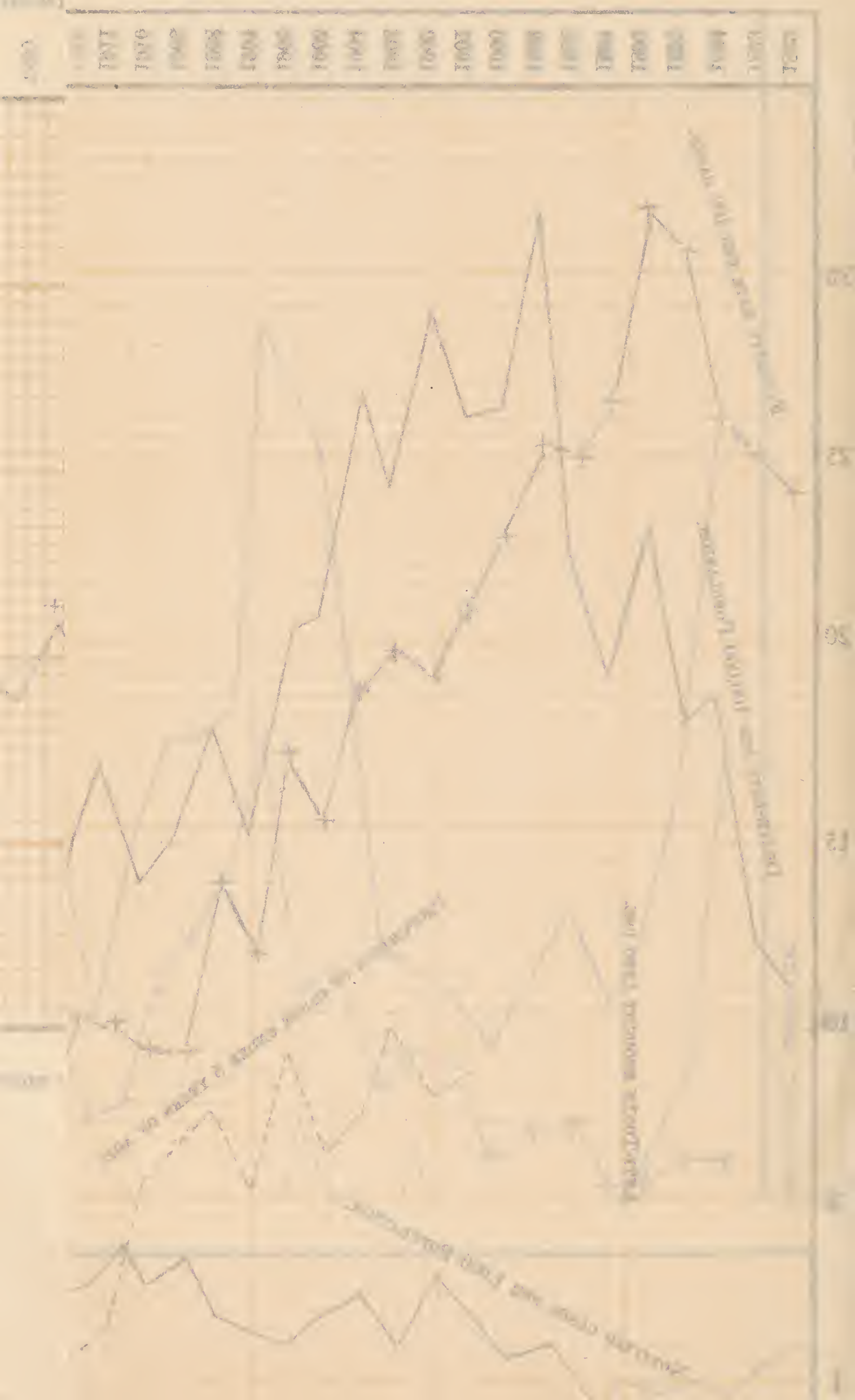
DIPHTHERIA (& MEMBRANOUS CROUP IN CITY OF LIVERPOOL DURING 1892—1930.

DEATH RATE PER 100,000 POPULATION, NOTIFIED CASES PER 1,000 POPULATION, FATALITY RATE PER 100 CASES NOTIFIED, AND PROPORTION OF CASES UNDER 5 YEARS OF AGE TO TOTAL CASES.



DIETITIANA 18. MICHIGAN - CHAS. W. CHY

DEATH RATE PER 100,000 POPULATION, NOTIFIED CASES
 CASES NOTIFIED AND LABORATORY IN CHARGE 1901



Already in the Autumn of 1929 it was apparent that another epidemic wave had begun. The summer of that year was very hot and dry, and it has been observed that epidemics of diphtheria are apt to follow dry summers. The high level of prevalence reached at the end of 1929 was continued throughout the first half of 1930—60 to 90 cases being notified per week—and only falling in July.

During August and September the numbers of cases rose again, reaching a maximum of 116 in the second week in September, the rise being due partly to several outbreaks in schools. The numbers of cases remained at a level of 80 to 100 cases per week, only reaching a lower level in March, 1931.

This continued extension of the disease taxed to the utmost the isolation hospital accommodation of the city. The number of cases in hospital, which was 222 on January 2nd, rose to 465 on April 3rd, was 412 on July 3rd, fell to 347 on September 4th, and finally reached 566 on December 31st. Early in 1931 there were over 600 beds allocated to cases of diphtheria.

The type of disease was on the whole severe. Paralysis was frequent and often occurred late in the course of the illness. The average duration of stay in hospital was about seven weeks. The incidence in affected institutions tended to be heavy. There can be little doubt that had it not been for the very skilled treatment received the mortality would have been heavier than was actually recorded. In 1918 the fatality rate was 17·5 per 100 cases; in 1930 it was 5·9.

Despite the heavy incidence upon the city, the orphanages and similar institutions have remained remarkably free from diphtheria. There can be no doubt that this is mainly due to the immunisation of the children. Thus of the three largest orphanages in the city, in two the children have been systematically immunised against diphtheria since 1926, and in a third immunisation was effected in 1929, and in none of these did a single case of diphtheria occur. Two further institutions were affected during the year. In one of these, Institution "B," which is a branch of a large institution in London, several of the boys had been immunised there. On the occurrence of a case in December the boys, 81 in number, were tested by the Schick test (see below), and it was found that 25 of the boys were susceptible; these were immunised with diphtheria toxoid, and no further case occurred.

At another institution, which is of the nature of a hospital, and admits about 60 children, three cases were reported in October. The whole of the inmates were tested for susceptibility to diphtheria, and also on several occasions swabbed for the discovery of carriers, of whom 10 were found; several of these had had sore throats. The susceptible children were immunised with toxoid, a further six cases occurring during the course of inoculation. Two further cases occurred in November and December respectively, since when the institution has remained free.

Several outbreaks occurred in schools. Numerous visits were made to these, and 796 children's throats were swabbed for the detection of carriers; of these 49, or 6·2 per cent., were positive. In all such cases the parents were informed and arrangements made for the medical care and isolation of the child. These measures were effectual in reducing the incidence of the illness in most cases.

Since 1920 observations have been made to determine with greater exactitude facts of the distribution of these diseases in the different parts of the city; for this purpose the city was divided into three zones:—(I.) Central, comprising Exchange and Abercromby; (II.) Middle, comprising Everton, Kirkdale, Edge Hill, Toxteth and Walton, and (III.) Outer, comprising the suburban areas of West Derby East, Wavertree, Fazakerley and Woolton. Sefton Park, formerly a separate registration district included in the outer zone, is now part of the Toxteth district. Examination of Table 2 shows the following points:—

(1) The incidence or case-rate is persistently higher in the outer than in the middle or central parts of the city. This is almost certainly due to a larger proportion of cases of a mild character receiving adequate medical attention in the outer districts. In other words a low case-rate, in this case, indicates incomplete notification of the disease. It is probable that the increase of the case-rate affecting the whole of the city during the past 40 years is due to similar causes.

(2) The death rate has, on the whole, been highest in the central districts during the eight years 1921-28, but was highest in the middle districts in 1929, and in 1930 was slightly higher in the outer than in the middle districts.

CITY OF LIVERPOOL—WEEKLY NOTIFICATIONS OF DIPHTHERIA.



Table No. 2.

DIPHTHERIA, YEAR 1930.

27

District.	Estimated Population, 1930.	Cases.	Deaths.	Attack Rate per 1,000.	Death Rate per 100,000.	Case Fatality Rate %.	Percentage Proportion of Secondary to Primary Cases. *	Percentage Proportion of Children 0-2 years to Total Cases.	Percentage Proportion of Children 0-5 years to Total Cases.
1. Exchange	83,658	183	10	2.2	11.9	5.5	1.0	10.9	36.0
2. Abercromby	45,715	166	9	3.6	19.7	5.4	6.9	2.4	30.1
3. Everton	118,622	417	18	3.5	15.2	4.3	7.1	5.8	26.8
4. Kirkdale	65,193	238	12	3.6	18.4	5.0	6.4	7.1	29.8
5. Edge Hill	92,994	240	16	2.3	17.2	6.7	5.7	4.2	23.3
6. Toxteth	136,024	475	31	3.5	22.8	6.5	8.9	4.4	24.6
7. Walton.....	92,000	567	40	6.1	43.5	7.1	9.4	2.8	22.6
8. West Derby	98,708	860	43	8.7	43.5	5.0	9.1	2.0	18.8
9. Wavertree	95,797	553	27	5.8	28.2	4.9	15.2	1.8	31.1
10. Fazakerley	43,525	249	25	5.7	57.4	10.0	4.3	4.8	19.0
11. Woolton	7,421	75	5	10.1	67.4	6.7	19.6	2.7	16.2
Central Districts (1 to 2) ...	129,373	349	19	2.70	14.7	5.4	3.5	7.6	33.3
Middle Districts (3 to 7) ...	504,833	1,937	117	2.32	38.4	6.0	7.9	4.1	25.0
Outer Districts (8 to 11) ...	245,451	1737	100	7.07	40.7	5.7	14.1	2.4	19.5
Whole City	879,657	4,023	236	4.57	26.8	5.9	14.1	3.6	23.3

* Cases are those with onset in 1929.

Table 3.

CITY OF LIVERPOOL.—DIPHTHERIA, 1926-30.

Districts	Case Rates per 1,000 population.					Death Rates per 100,000 population.					Fatality Rates.				
	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930	1927	1928	1929	1930	
Central (1-2)	1.43	1.57	1.92	2.12	2.70	18.3	14.2	11.8	13.3	14.7	8.9	4.3	6.2	5.4	
Middle (3-7)	1.05	1.90	2.09	2.40	2.32	11.5	12.0	10.9	16.9	38.4	6.3	5.2	7.0	6.0	
Outer (8-12)	2.30	2.23	2.50	3.53	7.07	13.9	5.4	12.5	15.2	40.7	2.5	5.0	4.3	5.7	
Whole City	1.77	1.94	2.20	2.68	4.57	13.2	10.5	10.4	15.9	26.8	5.4	5.27	5.95	5.9	
Districts	Percentage Proportion of Secondary to Primary Cases.					Percentage Proportion of Children 0-2 years old to Total cases.					Percentage Proportion of Children 0-5 years old to Total cases.				
	1926	1927	1928	1929	1930	1926	1927	1928	1929	1930	1927	1928	1929	1930	
Central (1-2)	0.6	6.3	2.1	3.9	3.5	11.2	13.4	6.1	5.5	7.6	25.4	33.0	38.9	33.3	
Middle (3-7)	5.0	5.5	6.5	8.0	7.9	9.2	6.7	5.2	6.2	4.1	19.2	33.6	33.6	25.0	
Outer (8-12)	20.2	9.3	10.4	10.1	14.1	4.5	5.7	4.3	4.0	2.4	14.6	19.2	20.2	19.5	
Whole City	11.9	9.9	10.4	14.6	14.1	7.8	7.2	5.0	5.6	3.6	18.5	29.0	30.7	23.3	

(3) The fatality rates are persistently higher in the central and the middle than in the other districts. Formerly the fatality rates in the central districts were somewhat higher than in the middle districts, but latterly this has been reversed.

(4) This higher rate of fatality coincides with the age distribution of the cases in the three zones. The proportion of children under two years and under five years (the ages when the disease is especially fatal) is also, on the whole, higher in the central than in the middle, and in the middle than in the outer zone. The variations in case rates and in the proportion of young children are sufficient to account for the variations in fatality.

(5) The proportion of secondary to primary cases—that is the proportion of second and further cases in a house to first cases—at first showed on the average little difference between the zones, but during the last four years it was markedly highest in the outer districts and least in the central districts. This is probably to some extent due to the occurrence of one or two outbreaks in institutions in the outer districts (see page 31), but other influences were also operative.

(6) The proportion of secondary to primary cases has increased since 1921, the proportions rising from 5·9 to 14·1 per cent.; this probably indicates the growth of a non-immune population since the severe outbreak of 1914-1920, and foretold the onset of the epidemic wave which began in the last quarter of 1929.

(7) In the central part of the city diphtheria is acquired at an earlier average age than in the outer zone. The earlier age at infection results in a higher proportion of deaths, and so in a raised death rate in the central area. The lower proportion of cases notified in the central zone is probably dependent upon the failure to obtain medical assistance in the milder types of cases.

Table No. 4.
DEATHS FROM DIPHTHERIA.

DISTRICTS.	QUARTERS.								YEAR 1930		
	March.		June.		Sept.		Dec.		M.	F.	Total.
	M.	F.	M.	F.	M.	F.	M.	F.			
Exchange	2	3	...	1	1	2	1	...	4	6	10
Abercromby .....	...	2	1	2	1	...	...	3	2	7	9
Everton	3	1	1	1	1	4	4	3	9	9	18
Kirkdale	3	1	2	2	...	1	1	2	6	6	12
Edge Hill	1	1	2	1	2	2	7	...	12	4	16
Toxteth	5	5	7	7	...	2	2	3	14	17	31
Walton	12	5	4	5	2	2	5	5	23	17	40
West Derby	6	3	7	1	5	3	6	12	24	19	43
Wavertree	3	3	3	5	3	2	5	3	14	13	27
Fazakerley	5	5	1	3	2	1	5	3	13	12	25
Woolton.....	...	...	...	3	1	...	...	1	1	4	5
City	40	29	28	31	18	19	36	35	122	114	236

AGES AT DEATH.

Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	60—	All Ages.
4	13	19	17	29	114	35	3	1	...	1	...	...	236

AGES OF NOTIFIED CASES.

36	109	194	284	315	1687	715	276	248	110	35	8	6	4023
65·2%						34·8%							

PERCENTAGE FATALITY AT EACH AGE.

11·1	11·9	9·8	5·9	9·2	6·7	4·9	1·1	0·40	...	2·8	5·9
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N.B.—Deaths in public institutions are transferred to the district whence the patients came.

PREVENTIVE MEASURES.—The most effectual method of preventing mortality from diphtheria in the past has been the removal of such cases to hospital; the great reduction in the fatality from the disease, which has fallen from 32·6 per cent. of the notified cases in 1891 to 5·9 per cent. in 1930, is due to the administration of anti-toxin promptly and in adequate amount; 95 per cent. of the notified cases were removed to hospital for treatment during 1930.

Recently, by the Schick test, it has become possible to distinguish between those who are and those who are not liable to attack; those susceptible can be immunised in a high proportion of cases by three subcutaneous injections of toxoid or of toxoid-antitoxin, and this has been carried out in a number of institutions during the year. In the case of children under 5 or 6 years of age the proportion of susceptibles is so high that the preliminary Schick test can be dispensed with and the three immunising injections given at once.

This method of immunisation has been used by the Liverpool Public Health Department during the past six years. Up to December 31st, 1930, 444 children have been inoculated without testing, and of 1,028 persons tested 476 (46 per cent.) have been found susceptible and immunised. A total of 1,028 persons have been tested and 920 inoculated without any ill effects beyond, in a few cases mainly amongst adults, a transient soreness of the arm. In addition a number of nurses were tested during 1930 at the city hospitals, and those found susceptible were immunised, as in former years. A number of children admitted to hospital with scarlet fever have also been immunised against diphtheria.

A much wider field, however, is open for this method of prevention. The risk of dying from diphtheria is much greater during the first few years of life than in subsequent years. It was with this purpose and following on a report of the medical officer of health that authority was given by the Health Committee in 1926 to issue supplies of diphtheria (and also scarlet fever) prophylactics for medical practitioners and to give assistance in testing older children as to susceptibility to diphtheria and scarlet fever at the request of a medical practitioner.

To further this end a weekly inoculation clinic was started at the Carnegie Welfare Centre towards the end of the year 1930. Up to March, 1931, close on 200 children had been inoculated against diphtheria; the large majority of these were also inoculated against scarlet fever.

SCARLET FEVER.

Scarlet Fever has shown a steady decline in mortality during the past 60 years. Whilst the number of cases has shown a reduction since 1902,

the fatality rate (or proportion of deaths to cases) has shown a very marked reduction, being in 1930 only 1·1 per cent., as against 19·2 in the year 1889. The death rate from scarlet fever was 4·0 per 100,000 inhabitants. The decline in the mortality of scarlet fever is well shown in the attached diagram.

The following table shows the fatality and mortality from scarlet fever during the past 11 years.

Table 1.
SCARLET FEVER IN THE CITY OF LIVERPOOL, 1920-1930.

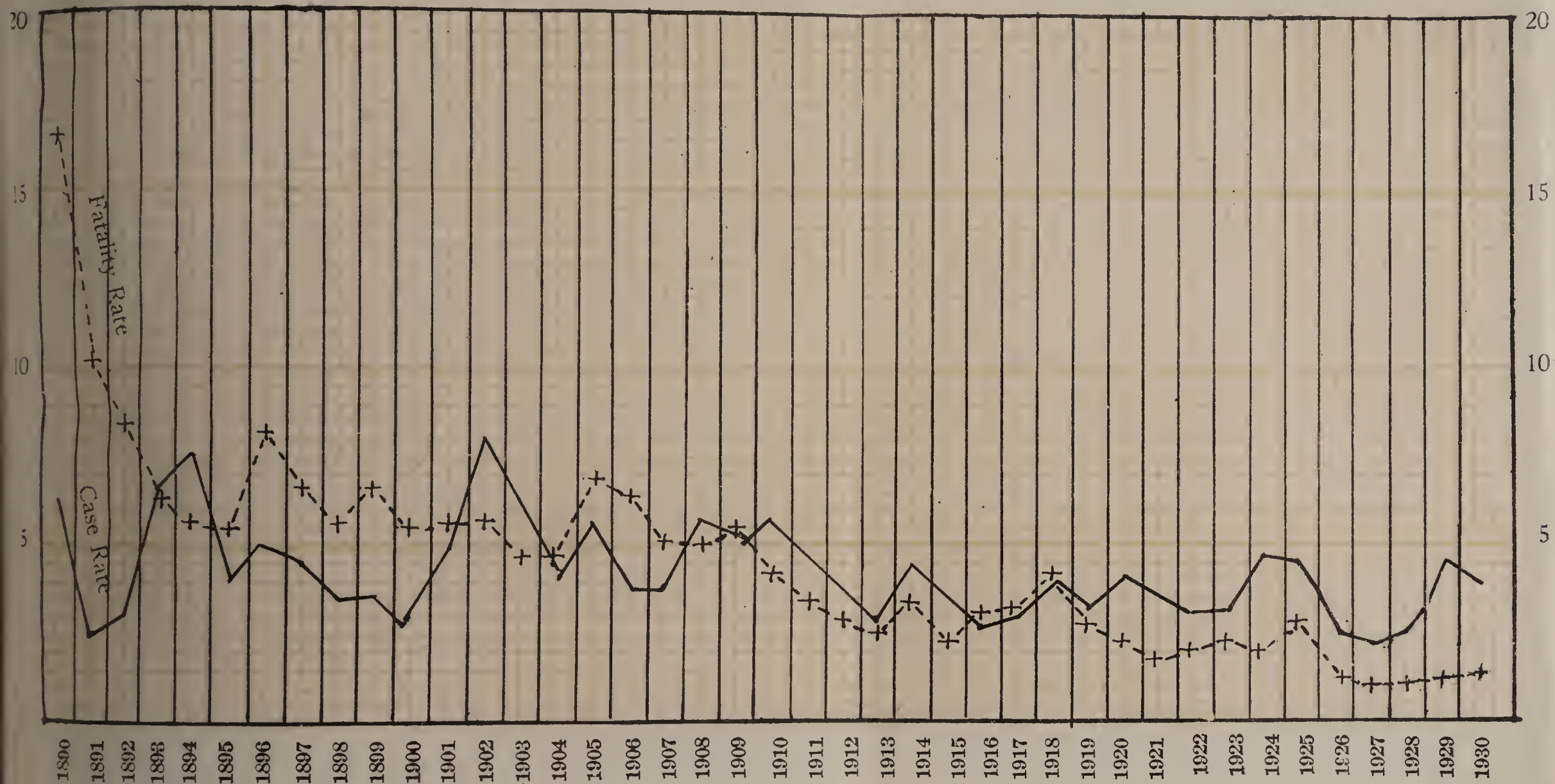
		1920.	1921.	1922.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.
Cases	... ..	3,230	3,062	2,419	2,307	3,790	3,561	2,244	1,640	2,193	3,989	3,069
Deaths	... ..	70	45	39	43	63	93	24	12	19	41	35
Case-rate per 1,000 inhabitants	... ..	4·1	3·7	2·9	2·8	4·5	4·2	2·6	1·9	2·5	4·57	3·49
Death-rate per 100,000 inhabitants	... ..	8·9	5·5	4·7	5·2	7·4	11·0	2·8	1·4	2·2	4·7	4·0
Fatality rate per 100 cases	... ..	2·2	1·5	1·6	1·8	1·7	2·6	1·1	0·7	0·87	1·02	1·14

The outbreak of scarlet fever which occurred in 1929 continued into 1930, the numbers in the first half of the year exceeding the average of the preceding 10 years. In the second half of the year only the normal autumnal rise occurred. Owing, however, to the great demand upon the isolation hospital accommodation, due to the prevalence of diphtheria, the arrangement for the reception of convalescent cases into the Olive Mount Cottage Homes continued in operation throughout the year.

During 1930 3,069 cases and 35 deaths were recorded, giving an attack rate of 3·49 per 1,000, and a mortality rate of 4·0 per 100,000 of the population. The low mortality is due to the small proportion of deaths to notified cases (fatality rate), which was 1·14 per cent. In this reduction of fatality the more extended use of scarlatinal anti-toxic serum has played a part. The importance of scarlet fever, however, arises not only from the deaths but from the cases of heart, kidney and middle ear disease which it occasions.

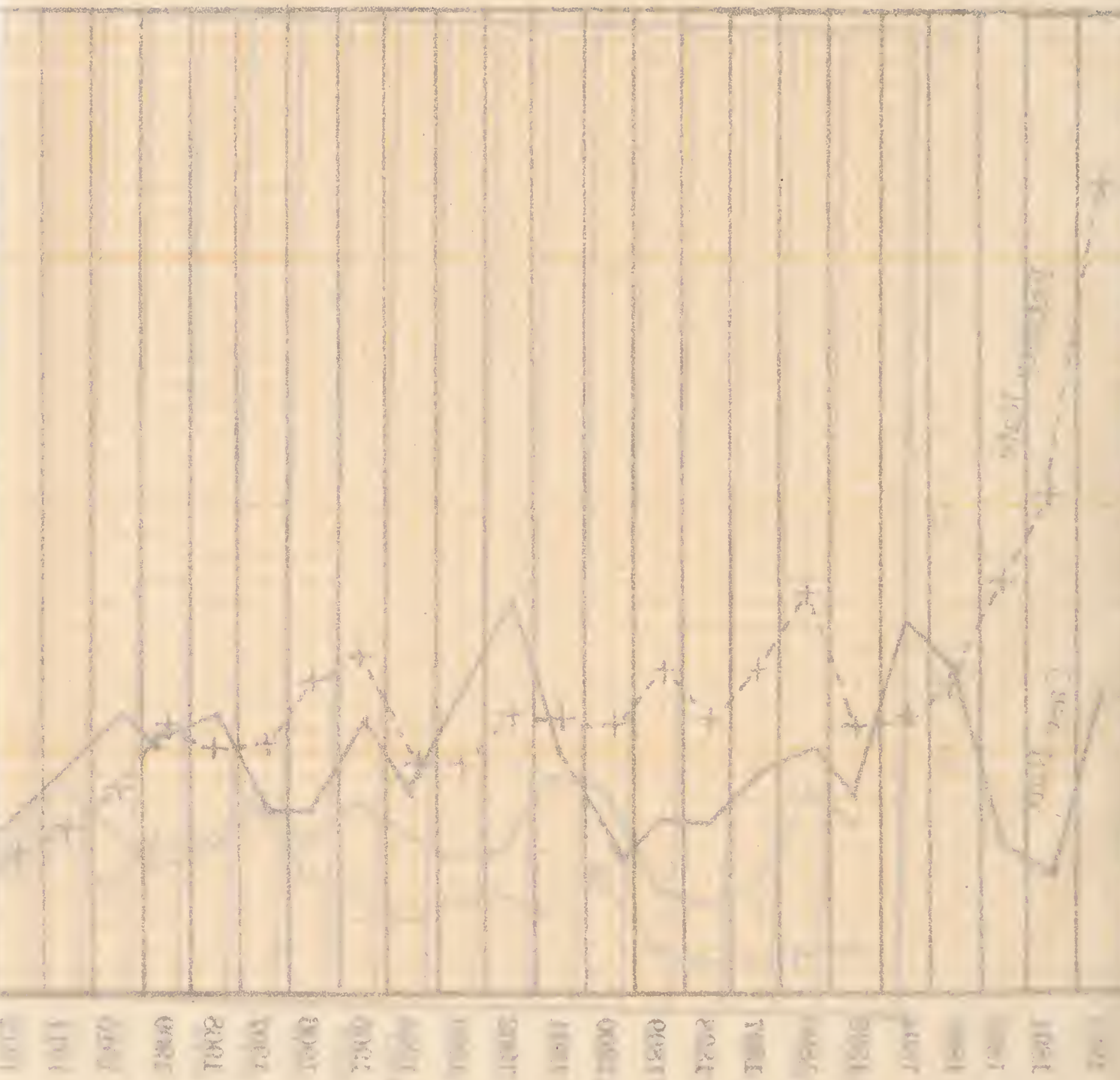
CITY OF LIVERPOOL

Scarlet Fever 1890—1930: Case Rate per 1000 Population, and Fatality Rate per 100 Cases.

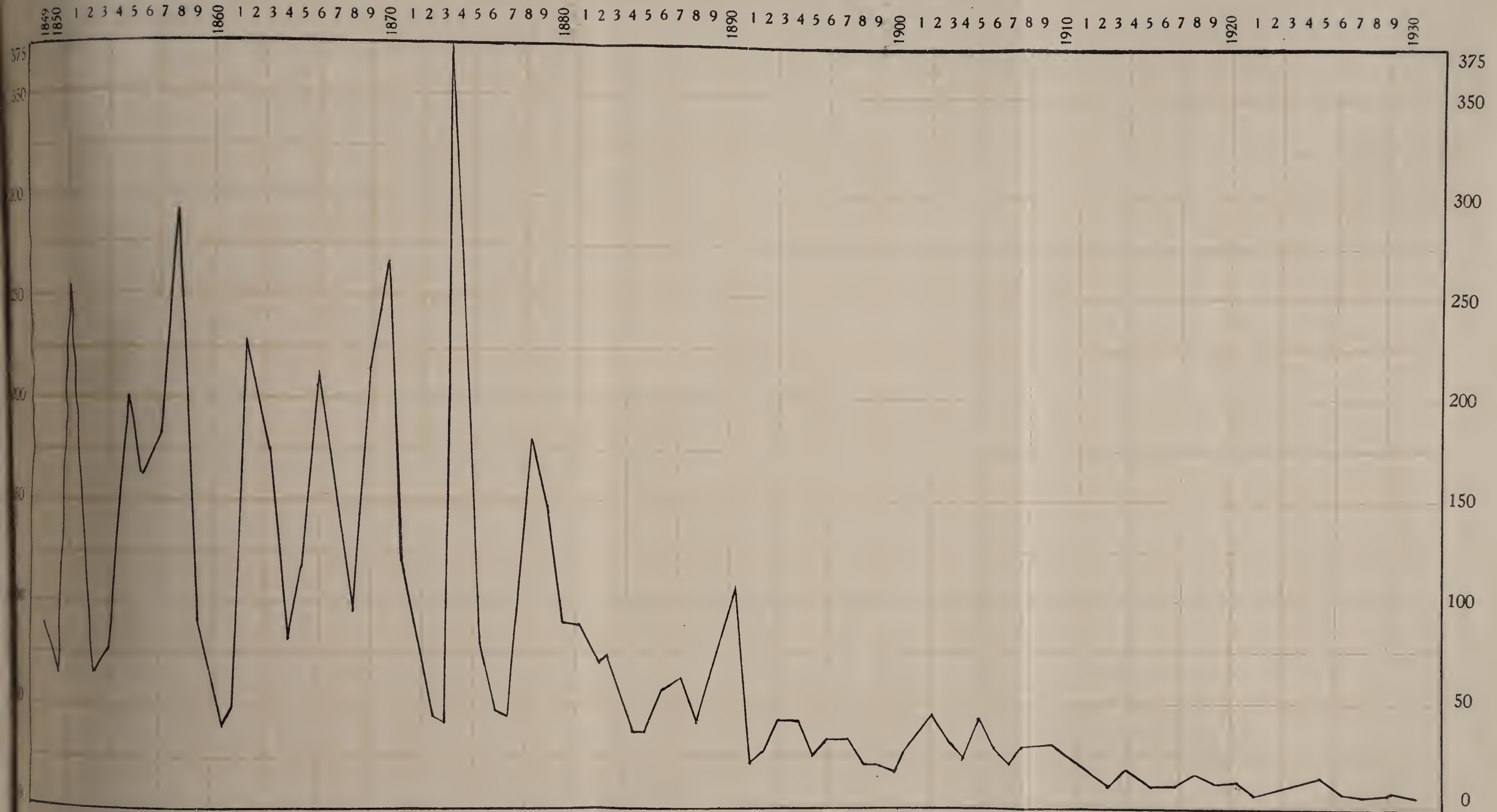


CITY OF LIVERPOOL

Scrubber Fever 1890-1920 - Case Rate per 1000



CITY OF LIVERPOOL. Scarlet Fever Death Rate per 100,000 1849-1930.



CITY OF LIVERPOOL

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

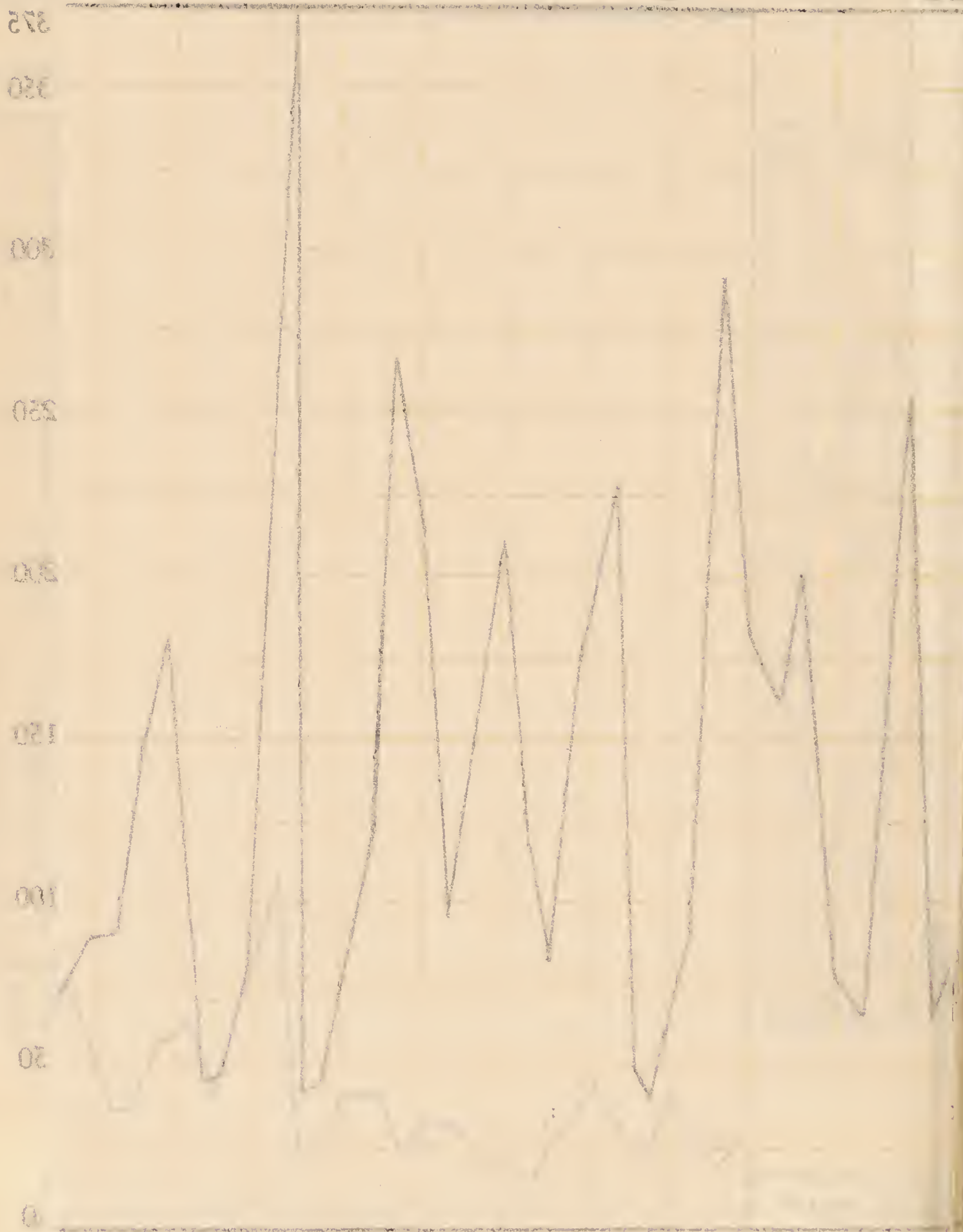


Table No. 2.
SCARLET FEVER, 1930.

District.	Estimated Population, 1930.	Cases.	Deaths.	Attack Rate per 1,000.	Death Rate per 100,000.	Case Fatality Rate %.	Percentage.		
							Proportion of Secondary to Primary Cases.	Proportion of Children 0-2 years to Total Cases.	Proportion of Children 0-5 years to Total Cases.
1. Exchange	83,658	179	5	2.1	5.9	2.8	12.3	12.3	44.2
2. Abercromby	45,715	118	1	2.6	2.2	0.8	3.5	11.9	40.5
3. Everton	118,622	385	5	3.2	4.2	1.3	8.8	6.5	38.7
4. Kirkdale	65,193	225	5	3.4	7.7	2.2	8.8	3.5	29.7
5. Edge Hill	92,994	244	3	2.6	3.2	1.2	10.8	4.5	27.1
6. Toxteth	136,024	417	3	3.7	2.2	0.7	8.6	3.4	27.8
7. Walton.....	92,000	404	6	4.4	6.5	1.5	10.0	4.5	23.5
8. West Derby East	98,708	518	3	5.2	3.0	0.6	10.3	3.1	24.1
9. Wavertree	95,797	434	4	4.5	4.2	0.9	5.5	2.3	28.6
10. Fazakerley	43,525	120	...	2.7	...	0.0	15.8	3.3	30.8
11. Woolton	7,421	25	...	3.4	...	0.0	7.8	...	16.0
Central Districts (1 to 2) ...	129,373	297	6	2.29	1.16	2.0	9.0	12.1	42.8
Middle Districts (3 to 7).....	504,833	1,675	22	3.32	4.36	1.3	9.4	4.5	28.9
Outer Districts (8 to 11) ...	245,451	1,097	7	4.47	2.85	0.6	8.5	2.6	26.4
Whole City	879,657	3,069	35	3.5	4.0	1.14	9.0	4.6	29.2

Since 1922 figures relating to scarlet fever have been compiled for each of the registration districts as is shown in table 2. Although some alteration in the boundaries of these districts has occurred, they are substantially the same, except that Garston has been included in Wavertree, Sefton Park in Toxteth, and the Norris Green area (formerly West Derby Rural District) is now included in Fazakerley and West Derby. For purposes of comparison the existing 11 registration districts have been grouped into three zones of fairly comparable character:—(i) Central zone, including Exchange and Abercromby; (ii) Middle zone, including Everton, Kirkdale, Edge Hill, Toxteth and Walton, and (iii) Outer zone, including Fazakerley, West Derby, Wavertree and Woolton.

The figures for each of these zones for the years 1925 to 1930 are shown in table 3. The following inferences may be drawn:—

(1) The death rates are, with the exception of 1930, uniformly higher in the central than in the middle, and in the middle than in the outer zone. Mortality decreases from the centre outwards.

(2) This raised mortality in the centre is due not to a higher recorded incidence of scarlet fever, but to a higher proportion of deaths per 100 cases (fatality) in the central than in the middle, and in the middle than the outer zone. In the outer zone, having a population of almost a quarter of a million persons, among 1,097 cases of scarlet fever only seven deaths occurred, a fatality of 0.6 per cent.

(3) Reference to table 4 will show that the highest fatality is experienced in the first year of life, and that after five years of age deaths are very rare. From table 3 it will be seen that there is uniformly a higher proportion of cases under two years in the centre of the city, and that there is usually a higher proportion of cases under five years in the central zone—1929 being exceptional in this respect. The cause of the higher mortality in the centre of the city is, then, the younger average age at which children are there attacked.

(4) The case rate is usually highest in the outer zone and lowest in the central zone, the figures for the middle zone being intermediate. In this respect, again, 1929 was exceptional. The inference from this lower rate of notified cases is that, in the poorer parts of the city, a considerable number of cases of scarlet fever escape notification, probably because in the milder cases medical advice is not sought.

(5) The proportion of secondary to primary cases in a house shows no constant variation between one district and another, but varies considerably between different years. It rises in epidemic years.

Table 3.

CITY OF LIVERPOOL.—SCARLET FEVER, 1925-1930.

Districts.	Case Rates per 1,000 population.						Death Rates per 100,000 population.						Fatality Rates per 100 cases.					
	1925	1926	1927	1928	1929	1930	1925	1926	1927	1928	1929	1930	1925	1926	1927	1928	1929	1930
Central (1-2)	3.53	2.3	0.95	1.74	4.22	2.29	14.6	3.8	1.56	3.14	7.79	1.16	4.1	1.6	1.7	1.8	1.8	2.0
Middle (3-7)	4.35	2.5	1.91	2.49	4.66	3.32	11.6	3.4	1.42	1.71	4.59	4.36	2.6	1.4	0.7	0.7	1.0	1.3
Outer (8-12)	4.31	3.2	2.45	2.97	3.28	4.47	7.6	0.9	1.26	2.57	3.28	2.95	1.8	0.3	0.5	0.8	0.7	0.6
Whole City	4.23	2.7	1.92	2.53	4.57	3.49	11.0	2.6	1.40	2.19	4.71	4.0	2.6	1.1	0.7	0.9	1.02	1.14
Districts.	Percentage Proportion of Secondary to Primary Cases.						Percentage Proportion of Children 0-2 years old to Total Cases.						Percentage Proportion of Children 0-5 years old to Total Cases.					
	1925	1926	1927	1928	1929	1930	1925	1926	1927	1928	1929	1930	1925	1926	1927	1928	1929	1930
	16.9	15.1	3.7	7.8	14.1	9.0	8.3	9.1	8.6	5.5	4.4	12.1	29.4	39.8	23.1	31.0	25.4	42.3
	16.9	10.0	10.2	9.16	11.9	9.4	5.7	6.0	5.9	4.2	2.8	4.5	27.0	34.5	28.5	31.2	27.9	28.9
	14.9	11.7	12.6	19.8	13.7	8.5	4.7	5.0	3.4	3.1	3.2	2.6	22.2	28.3	20.9	25.8	31.8	26.4
Whole City	18.0	13.7	12.3	17.5	17.4	9.0	5.8	6.2	5.2	3.9	3.1	4.6	26.1	32.1	25.4	29.2	28.7	29.2

Table No. 4.
DEATHS FROM SCARLET FEVER.

DISTRICTS.	QUARTERS.								YEAR.		
	March.		June.		Sept.		Dec.		1930.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total
Exchange	2	1	...	2	...	...	...	...	2	3	5
Abercromby .....	...	...	...	...	...	1	...	...	...	1	1
Everton	1	...	1	1	1	...	1	...	4	1	5
Kirkdale	3	...	...	...	1	...	1	...	5	...	5
Edge Hill .....	...	1	...	...	1	...	1	...	2	1	3
Toxteth .....	...	1	...	...	1	...	1	...	2	1	3
Walton .....	...	4	...	1	...	...	...	1	...	6	6
West Derby .....	...	3	...	...	...	...	...	...	...	3	3
Wavertree	1	...	...	2	1	...	...	...	2	2	4
Fazakerley .....	...	...	...	...	...	...	...	...	...	...	...
Woolton .....	...	...	...	...	...	...	...	...	...	...	...
City	7	10	1	6	5	1	4	1	17	18	35

AGES AT DEATH.

Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	60 and up- wards.	All Ages.
3	6	2	4	3	7	5	...	1	...	2	...	2	35

AGES OF NOTIFIED CASES.

23	118	185	290	285	1361	447	156	144	44	8	4	4	3069
29.4%					44.4%		14.5%		11.7%				

PERCENTAGE FATALITY AT EACH AGE.

13.0	5.1	1.1	1.4	1.1	0.51	1.1	...	0.69	...	25.0	...	50.0	1.14
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N.B.—Deaths in public institutions are transferred to the districts whence the patients came.

RETURN CASES.—Cases occurring within the outside margin of one month of the discharge of a case from hospital to the same house were regarded as “return cases.” Of the 2,923 cases discharged from hospital after suffering from scarlet fever, 62 or 2·1 per cent., were associated with recurrent infection in this way. In only six houses did more than one “return case” arise, namely, two cases in four instances. The proportion of “return cases” to cases discharged from hospital was 1·8 in 1920, 2·7 in 1921, 3·3 in 1922, 2·6 in 1923, 3·4 in 1924, 3·3 in 1925, 2·9 in 1926, 1·8 in 1927, 2·2 in 1928, and 1·6 in 1929.

Table 5.
SCARLET FEVER, RETURN CASES.

	1930.		Average of past 11 years.	
	No. of cases associated with return cases.	Expressed as a percentage of cases discharged from hospital.	No. of cases associated with return cases.	Expressed as a percentage of cases discharged from hospital.
January	18	3·0	6·2	2·7
February	14	3·5	5·0	2·7
March	5	2·0	5·0	2·8
April	6	2·1	4·5	2·6
May	4	1·8	5·5	2·9
June	4	1·6	3·5	2·1
July	—	0·0	4·6	2·4
August	1	0·6	4·6	2·2
September	3	1·9	3·1	1·4
October	4	2·1	5·2	2·3
November	1	0·5	4·5	1·5
December	2	1·2	9·4	2·5
WHOLE YEAR ...	62	2·1	61·1	2·3

DICK TESTING AND IMMUNISATION AGAINST SCARLET FEVER.

The principles of this method of preventing scarlet fever are identical with those described as available against diphtheria (see p. 31), except that no anti-toxin is given with the toxin, which is used unmodified. The nursing and/or other staffs of the City Hospital, Fazakerley, City Hospital North and City Hospital South have been tested and/or immunised against scarlet fever with satisfactory results.

In addition to the above, up till the end of 1930 there have been tested for susceptibility to scarlet fever 1,004 children, of whom 208 were found susceptible. A total of 423 children have been immunised.

At the clinic at the Carnegie Welfare Centre children had been inoculated during the last two months of 1930. Material for inoculation has also been sent to a small but increasing number of medical practitioners.

Several institutions in which inoculation of the children entering the institution was systematically carried out remained almost free from the disease throughout the year.

MEASLES.

The number of deaths from measles has shown a tendency to decline in recent years. The number of deaths was 170 during 1930, as against an average of 268 for the past ten years. The mortality rate was 19·3 per 100,000 of the population.

Measles became a notifiable disease in 1915 by order of the Local Government Board (now the Ministry of Health); the disease is no longer generally notifiable, but in Liverpool is notifiable on a voluntary basis. During the year 5,966 cases came under the notice of the Medical Officer of Health, the sources of information being as follows:—

Notified by medical practitioners ...	...	5,090
Information from schools, etc. ...	...	876

Of these cases 840 were removed to hospital. The proportion of deaths to notified cases, or fatality rate, was 2·8 per cent., the average of the past ten years being 3·4 per cent. The mortality in measles depends mainly upon the age at which infection occurs; as shewn in Table 4, the great majority of the deaths occur in children under four years of age. Any increase in the proportion of cases among children under this age will be attended by a corresponding rise in fatality.

The experience of the past eleven years is shown in the following table :

Table 1.

	1920.	1921.	1922	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.
Cases	11,448	9,143	3,570	11,089	5,709	11,202	8,694	10,606	6,025	10,546	5,966
Deaths	387	328	171	356	148	406	221	345	177	427	170
Case rate per 1,000 inhabitants	14·6	11·2	4·3	13·4	6·9	13·3	10·3	12·4	6·96	13·19	6·78
Death rate per 100,000 inhabitants	49	40	21	43	17·7	48·3	26·0	40·3	20·4	50·1	19·3
Fatality rate (percentage of deaths per 100 cases) ...	3·4	3·6	4·8	3·2	2·6	3·6	2·5	3·2	2·9	4·0	2·8

The proportion of cases removed to hospital has shown a tendency to increase in recent years. In 1930 the proportion removed was 14·2 per cent., as against 15·0 per cent. in 1929 and 13·7 in 1928.

The experience of many years has shown that measles tends to recur in waves which follow each other at intervals of about 92 weeks. The periodic recurrences are very regular over considerable periods, but when the epidemic is due to reach its height in one of the three autumn months, August, September or October, it fails to do so, two maxima occurring instead, one before and the other after the expected date. On the other hand, when the epidemic is due to occur in the winter a severe outbreak may be anticipated, as was the case in 1929 and 1931.

The second table shows the deaths from measles in the several districts of the city during the past eight years. Exchange and Toxteth—the more central districts of the city—were principally affected, 73 out of

the total of 170 deaths occurring in those districts. These districts also have a higher birth rate than the rest of the city, and it is probable that their greater mortality from measles is dependent upon the earlier age at which the children living in these districts are attacked by measles, as well as their greater density of population.

The third table gives the ages of attack and the ages at death of the 5,090 cases notified by doctors, and from these figures the corresponding fatality rates per 100 cases at each age have been obtained. It will be seen that the fatality rates in the first three years of life are considerably higher than at any subsequent period.

The following table gives the notified cases and deaths at each age for the ten year period 1921-30 :—

Ages.	0	1	2	3	4	5	6	7	8	9	10-14
Cases ...	4701	8685	7766	7582	7265	11275	8452	2951	1286	693	1521
								24,657			
Deaths ...	679	1319	444	156	54			97			5
Fatality Rate (percentage of deaths to cases).	14.4	15.2	5.7	2.1	0.74			0.39			0.33

Thus in a total of 63,009 notified cases there occurred 2,754 deaths, or 4.37 per cent. It will be noted that between the second and fifth years of life the fatality rate at any year of life is approximately one-third of that in the preceding year; in other words, for every year that a child survives during this period of life without being attacked by measles its chance of dying if attacked is diminished to a third of that which held good in the previous year. This indicates the great importance of deferring attack by measles until at least the sixth year of life. After that age the chances of dying if attacked do not vary much.

Apart from school closure, referred to elsewhere, other measures to limit the ravages of the disease include efforts to secure the isolation of the patients; in view of the heavy mortality among children under three years of age, parents are strongly urged to keep those of tender age apart from those already affected. Children coming from a house in which a case of measles has occurred are excluded from school for

16 days; children over 7 years of age who have already had measles are exempted from such exclusion.

An Order of the Ministry of Health authorises local authorities to provide medical assistance including nursing for the poorer inhabitants of their district, and two nurses of the Health Visitors' Staff are engaged on this work, assisted by other members of the staff as occasion requires. In consequence of the visits of these nurses, many children have benefited from the assistance and advice given, and in some instances children have been removed for hospital treatment who would otherwise have been left at home without adequate care and attention. The visits, etc., made by these nurses in the course of 1930 were as follows:—

New cases visited during the year ...	...	4,467
Cases nursed	„ „ ...	457
Re-visits to cases	„ „ ...	4,915

As 98 per cent. of deaths from measles are due to complications, mainly pneumonia, there can be little doubt that the work of these nurses has resulted in much saving of life.

Table 2.

Deaths from measles for the year 1923 to 1930, after distribution of the institutional deaths according to the place of residence:—

District.	1923.	1924.	1925.	1926.	1927.	1928.	1929.	1930.
Exchange ...	76	20	112	51	83	40	108	42
Bercromby ...	35	8	33	15	31	13	33	12
Overton ...	68	30	81	44	88	34	87	16
Kirkdale...	26	13	36	16	13	9	35	19
Edge Hill ...	29	12	28	29	30	8	30	14
Toxteth ...	60	35	58	35	48	27	48	31
Walton ...	19	10	17	13	14	13	24	12
West Derby ...	13	10	14	8	11	16	37	4
Wavertree ...	30	7	29	9	27	11	19	8
Fazakerley ...	...	3	...	...	...	6	6	12
Woolton ...	...	...	1	1	...	...	...	—
Total ...	356	148	406	221	345	177	427	170

Table 3.
DEATHS FROM MEASLES.

DISTRICTS	QUARTERS.								YEAR 1930.		
	March		June.		Sept.		Dec.		M.	F.	Total
	M.	F.	M.	F.	M.	F.	M.	F.			
Exchange	1	3	4	6	2	3	13	10	20	22	42
Abercromby .....	...	...	4	4	...	...	2	2	6	6	12
Everton .....	...	...	...	...	2	...	7	7	9	7	16
Kirkdale .....	...	...	8	3	...	3	2	3	10	9	19
Edge Hill .....	...	...	3	1	2	...	2	6	7	7	14
Toxteth .....	...	1	4	3	3	...	11	9	18	13	31
Walton	1	2	...	4	...	1	1	3	2	10	12
West Derby .....	...	...	2	...	1	...	1	...	4	...	4
Wavertree	1	...	2	1	...	2	2	...	5	3	8
Fazakerley .....	...	...	2	...	...	1	6	3	8	4	12
Woolton .....	...	...	...	...	...	...	...	...	...	...	...
City	3	6	29	22	10	10	47	43	89	81	170

AGES AT DEATH.

Under 1 year.	1—	2—	3—	4—	5—	10—	15—	20—	30—	40—	50—	60—	All Ages.
45	73	25	10	5	12	170

AGES OF NOTIFIED CASES.

397	625	563	591	618	2175	65	56					5090
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PERCENTAGE FATALITY AT EACH AGE.

11.3	11.7	4.4	1.6	0.8	0.5	0.0	...					3.3
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N.B.—Deaths in public institutions are transferred to the districts from which the patients came.

Table 4.

MEASLES DURING THE YEAR 1930.

Statement showing the total numbers of cases brought under the notice of the medical officer, from schools, and by notifications from medical practitioners :—

Age.	Cases occurring in children of school age from both sources	Cases notified by medical practitioners.	Number of deaths.	Fatality rate per 1,000 cases.
0—1	...	397	45	113·3
1—2	...	625	73	116·8
2—3	...	563	25	44·4
3—4	...	591	10	16·9
4—5	109	618	5	8·1
5—6	1340	1907	} 12	4·0
6—7	820	715		
7—8	245	243		
8—9	98	77		
9—10	46	43	} 0	0·0
10—11	27	28		
11—12	20	9		
12—13	12	14		
13—14	13	8	} 0	0·0
14—15	7	6		
15 upwards	...	56	0	0·0
	2,737	5,090	170	33·4

WHOOPIING COUGH.

The number of cases coming to the notice of the medical officer during 1930 was 1,147, and the number of deaths 75, corresponding to a death rate of 8·5 per 100,000 inhabitants. The average death rate from whooping cough during the past 80 years is as follows. —

1850-59	...	...	...	...	...	...	103·6
1860-69	...	...	...	...	...	...	107·3
1870-79	...	...	...	...	...	...	86·8
1880-89	...	...	...	...	...	...	72·9
1890-99	...	...	...	...	...	...	56·3
1900-09	...	...	...	...	...	...	45·0
1910-19	...	...	...	...	...	...	32·6
1920-25	...	...	...	...	...	...	23·8
1926-29	...	...	...	...	...	...	22·6
1929	...	...	...	...	...	...	22·7
1930	...	...	...	...	...	...	8·5

This shows a very considerable decline in mortality during this period. Whether the decline is due to lessened prevalence, to alterations in the age-incidence, or to lowered virulence cannot be ascertained from the figures. The following table shows for the past ten years the number of cases coming to the notice of the medical officer, the number of deaths, the death rate per 100,000 inhabitants, and the fatality rate per 100 cases :—

Years.	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930
Cases	3019	2025	2261	2321	2274	1971	1988	2313	1876	1147
Deaths	210	182	156	169	227	188	125	269	198	75
Death rate per 100,000 of the population ...	26	22	19	20	27	22	15	31	23	8·5
Percentage of deaths to cases	8·1	9·0	7·9	7·3	9·9	9·5	6·3	11·6	10·5	5·5

As the disease is not compulsorily notifiable, caution is necessary in drawing conclusions from the figures relating to cases and fatality rates. Whooping cough is extremely fatal in the first two or three years of life, and it is of the utmost importance that children of tender years should be protected from possible sources of infection.

CEREBRO-SPINAL FEVER.

Twenty-one cases of cerebro-spinal fever occurred during 1930. of which 17 (or 81 per cent.) proved fatal, making a death rate of 1·9 per 100,000 of the population. The cases during the years 1917 to 1929 were 34, 17, 26, 27, 26, 18, 8, 13, 24, 16, 25, 21 and 23 respectively.

ENCEPHALITIS LETHARGICA.

This disease was made notifiable in 1919. During 1930, after excluding the duplicate notifications, 30 notifications of cases of encephalitis lethargica were received; three of these were found, mostly after admission to hospital, to be suffering from other diseases.

There are left, therefore, 27 cases which remained in the records as cases of encephalitis lethargica. There were 18 deaths certified as from encephalitis lethargica; of these five were deaths of persons notified in earlier years and whose malady had become chronic, and seven deaths were of chronic cases not notified in earlier years; the net total of deaths attributable to encephalitis lethargica contracted in 1930 was therefore six. During the period 1918-1930 there have been notified 681 cases, of which 236, or 34·6 per cent., have sooner or later proved fatal. The mean fatality rate of acute cases has been 25·8 per cent. during the past 10 years. The incidence and mortality during this period are shown in the following table :—

CITY OF LIVERPOOL.

ENCEPHALITIS LETHARGICA (1920-1930).

	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929
Cases	17	27	5	111	189	108	114	69	54	28
Rate per 1,000 population	0·02	0·03	0·01	0·13	0·22	0·13	0·13	0·08	0·06	0·03
Deaths... ..	2	6	3	36	22	44	29*	25†	24**	26††
Rate per 100,000 population	0·20	0·73	0·36	4·30	2·40	5·22	3·4	2·92	2·8	3·0
Fatality per 100 cases	12	22·2	40	32·4	10·6	40·5	25·5*	36·2†	44·4**	92·8††
Do. (Acute cases only)	...	...	...	...	...	...	21·9	23·0	20·4	35·0

* This number and rate include the deaths of 4 persons who were either notified in earlier years or were transferred from outside districts. If these deaths are excluded the fatality rate becomes 21·9 per cent.

† This number and rate include the deaths of 9 persons who were either notified in earlier years or were transferred from outside districts. If these deaths are excluded the fatality rate becomes 23 per cent.

** This number and rate include the deaths of 13 persons who were either notified in earlier years or were transferred from outside districts. If these deaths are excluded the fatality rate becomes 20·4 per cent.

†† This number and rate include the deaths of 11 persons who were notified in earlier years. If these deaths are excluded the fatality rate becomes 53·5 per cent. If the eight chronic cases notified in 1929 are excluded the fatality rate becomes 35 per cent.

§ This number and rate contain the deaths of 5 persons who were notified in earlier years. If these deaths are excluded the fatality rate becomes 48·1 per cent. If the six chronic cases notified in 1929 and dying in 1930 are also excluded the fatality rate becomes 25·8 per cent.

The old standing cases which died in 1929 were notified as follows:—1924 two, 1926 one, 1927 one, 1928 one, not notified before, seven.

Ten of the cases were males and seventeen were females, and two of the cases were inmates of one of the cottages at the Cottage Homes, Fazakerley.

ACUTE ANTERIOR POLIOMYELITIS (INFANTILE PARALYSIS).

During 1930, 14 cases of poliomyelitis were notified, 6 of which, or 42·8 per cent., proved fatal. In 1929, 23 cases were reported, whilst 39, 14, 4, 19, 15 and 6 cases were reported in the years 1923 to 1928. The cases during 1930 were reported as follows:—January, 4 cases; February, 3 cases; March, 1 case; August, 1 case; September, 1 case; October, 2 cases; November, 1 case; December, 1 case. The notification of cases of poliomyelitis is probably very incomplete. Two of the above were notified as poliomyelitis.

INFLUENZA AND OTHER RESPIRATORY DISEASES.

Respiratory diseases cause a varying proportion of the total deaths from all causes. In the decennial period 1871-80 the proportion of deaths certified as due to respiratory diseases was 20·2 per cent. of all deaths; in 1930, 19·9 per cent. of all deaths were respiratory; the variations correspond to the prevalence of influenza. The table below shows for deaths due to respiratory diseases the actual numbers, the percentage proportion to all deaths, the death rates per 1,000 population, and the death rates expressed as a percentage proportion of the rates experienced in 1871-80 (index figures):—

DEATHS FROM RESPIRATORY DISEASES. (Including Influenza).

	Actual numbers of deaths.	Percentage proportion to all deaths.	Death-rate per 1,000 population.	Death-rates as a percentage proportion of rate experienced in 1871-80.
1871-80 ...	29,763	20·2	5·7	100
1881-90 ...	32,507	23·2	5·9	104
1891-1900	35,819	24·6	5·9	104
1901-10 ...	32,995	21·8	4·5	79
1911-20 ...	36,480	27·3	4·73	83
1921-25 ...	15,075	25·8	3·64	63·8
1926 ...	2,809	24·1	3·30	57·7
1927 ...	3,083	26·0	3·60	63·1
1928 ...	2,587	22·6	3·0	52·6
1929 ...	3,243	27·7	4·18	73·5
1930 ...	2,242	19·9	2·55	44·7

The rate per 1,000 population had therefore declined in 1930 to 44·7 per cent. of the 1871-80 rate. The decline, however, has not been steady; a rise occurred in 1881-90, and continued into the following decennium. A later rise occurred in 1911-20 owing to the virulent influenza pandemic of 1918-19. Rises also occurred in 1929 and 1931.

The experience of earlier years has shown that epidemics of influenza recur at intervals of 33 weeks, or multiples of this period; the most

severe outbreaks are those which occur in the winter months, namely, from January to March. An outbreak was anticipated about the last week of November, 1930, but actually occurred early in 1931.

The mortality from respiratory diseases rose steadily during November and December, but fell again in the last two weeks of the year. During the first two months of 1931 the city again experienced a severe outbreak of influenza, comparable in many respects to that which occurred in 1929.

In Liverpool, the first definite appearance of influenza in epidemic form in 1931 was in the second week of January, when 14 deaths were so ascribed. The number of deaths from all forms of respiratory disease showed evidence of a rise during the same week, when 123 deaths were so registered. The disease continued in epidemic form for six weeks, during which period 128 deaths were certified as being due to influenza. Comparing the first nine weeks of 1931 with the corresponding period of 1930, a year largely free from influenza, there occurred 3,262 deaths in 1931 and 1,916 deaths in 1930, or an excess of 1,346 in 1931.

An examination of the deaths at several ages from a number of causes shows that nearly half of this excess of mortality during 1931 over 1930 occurred at ages 65 and upwards; further, the greater part of this excess, 686 deaths in all, was to be accounted for by diseases of the respiratory system, and 114 deaths to diseases of the heart and blood vessels. This latter group probably owes its increase as much to the severity of the weather as to the effects of influenza:—

City of Liverpool—January 1st to March 2nd.

Excess of mortality of 1931 over 1930 from certain causes.

	0-1	1-5	5-15	15-65	Over 65	TOTAL.
Influenza	9	7	2	102	73	193
Other Respiratory Diseases	63	97	2	124	198	484
Pulmonary Tuberculosis	—	3	—	6	—	9
Organic Disease of the Heart	—	—	—	27	47	74
Diseases of Blood Vessels	—	1	—	14	25	40
	72	108	4	273	343	800

The serious incidence of excess of respiratory diseases upon young children is especially to be noted.

The height of the epidemic in this city was reached in the week ended January 24th, 1931, when 529 deaths were registered. Comparison with the outbreaks of 1918 and 1919, when 626 and 638 deaths were recorded in the peak weeks, shows that this outbreak was of similar severity :—

City of Liverpool.

Week ended.	Total Deaths All causes.	Weekly Death Rate per 1,000 of estimated population.	No. OF DEATHS FROM		Proportion of respiratory deaths to total deaths.
			Influenza.	Other Respiratory Diseases.	
Oct. 19th, 1918...	626	41·6	198	182	60·7
Feb. 22nd, 1919...	638	42·5	169	232	62·7
Feb. 18th, 1922...	520	33·6	51	215	51·1
Feb. 26th, 1927...	443	27·0	45	193	53·5
Feb. 2nd, 1929...	606	37·8	72	237	50·1
Jan. 24th, 1931...	529	31·3	67	185	37·0

At an early stage in the epidemic, it became apparent that certain schools were acting as foci of infection. A large number of schools (90) were closed partially or completely for periods of one or two weeks on the recommendation of the medical officer. As in 1929, there was, concurrently with the outbreak of influenza, an extensive outbreak of measles; there is reason to believe that the severity of the measles epidemic was aggravated by the simultaneous prevalence of influenza and its sequels.

Owing to the numerous cases of pneumonia receiving treatment in the transferred Poor Law Hospitals, the pressure upon these institutions during the height of the epidemic became severe. In the case of children the accommodation in the Olive Mount Cottage Homes was available during convalescence or for minor ailments. In the case of adults the pressure on the beds was considerable, and a number of acute cases had to be admitted into the Belmont Road Institution.

The following table shows week by week during 1930 the total number of deaths from all causes, the general death rate, and the number of deaths from influenza, pneumonia, bronchitis, and the total respiratory deaths.

These figures do not include the deaths of Liverpool residents which occurred outside the city.

1930. Week ended.	Total Deaths.	Weekly Death Rate per 1,000 of Estimated Population	NUMBER OF DEATHS FROM			Total Respira- tory Deaths.	Per Pro R to D
			Influenza.	Pneumonia and Broncho- Pneumonia	Bronchitis.		
JAN. (4 days) 4	145	—	—	21	10	35	
11	212	12·6	2	29	17	51	
18	203	12·0	3	28	17	49	
25	212	12·6	2	23	21	47	
FEBRUARY 1	238	14·1	1	30	12	47	
8	237	14·0	2	26	23	51	
15	248	14·7	5	25	22	51	
22	287	17·0	5	45	29	83	
MARCH 1	274	16·2	4	57	19	81	
8	270	16·0	3	47	33	81	
15	244	14·5	3	36	23	63	
22	251	14·9	—	25	28	57	
29	230	13·6	1	23	18	44	
1st Quarter	3,051	14·3	31	415	272	740	
APRIL 5	236	14·0	—	24	18	44	
12	208	12·3	3	21	19	40	
19	175	10·3	2	19	8	28	
26	242	14·3	1	24	21	50	
MAY 3	203	12·0	—	24	17	42	
10	210	12·4	1	22	16	38	
17	217	12·8	2	21	11	36	
24	211	12·5	1	25	10	38	
31	191	11·3	—	15	17	35	
JUNE 7	202	12·0	1	19	9	29	
14	177	10·5	—	19	8	29	
21	189	11·2	2	12	12	27	
28	153	9·1	1	11	9	25	
2nd Quarter	2,614	12·4	14	256	175	461	
JULY 5	171	10·1	1	14	5	20	
12	156	9·2	—	8	8	20	
19	162	9·6	—	15	8	25	
26	171	10·1	—	13	6	20	
AUGUST 2	155	9·2	1	3	8	11	
9	149	8·8	1	15	6	22	
16	155	9·2	—	7	4	12	
23	147	8·7	—	15	4	22	
30	172	10·2	—	10	6	16	
SEPTEMBER 6	178	10·5	—	10	7	18	
13	152	9·0	—	10	6	16	
20	165	9·8	1	14	9	25	
27	184	10·9	—	10	1	12	
3rd Quarter	2,117	9·6	4	144	78	239	

1930. Week ended.	Total Deaths.	Weekly Death Rate per 1,000 of Estimated Population	NUMBER OF DEATHS FROM			Total Respira- tory Deaths.	Percentage Proportion of Respira- tory to Total Deaths.
			Influenza.	Pneumonia and Broncho- Pneumonia	Bronchitis.		
OCTOBER 4	187	11.1	3	17	10	28	14.9
11	212	12.5	1	18	8	29	13.7
18	204	12.1	1	25	7	34	16.6
25	189	11.2	1	23	10	36	19.0
NOVEMBER 1	180	10.7	2	21	9	32	17.8
8	181	10.7	5	18	7	28	15.5
15	200	11.9	1	23	15	40	20.0
22	258	15.2	3	48	19	73	28.3
29	251	14.9	5	44	13	60	23.9
DECEMBER 6	255	15.1	—	42	29	74	29.0
13	280	16.6	2	40	32	79	28.2
20	288	17.1	—	41	28	72	25.0
27	247	14.6	2	26	30	66	26.7
(4 days) 31	175	—	—	18	11	31	17.7
4th Quarter	3,107	13.4	26	404	228	682	21.9
Total 12 months ...	10,889	12.4	75	1,219	753	2,122	19.5

PUBLIC HEALTH (INFECTIOUS DISEASES) REGULATIONS, 1927.

The following statement shows the number of notifications received under the regulations and the number of deaths during 1929 and 1930 :—

	1929.		1930.	
	Cases.	Deaths.	Cases.	Deaths.
Acute Pneumonia	3,830	1,807	2,545	1,253
Malaria	63	5	125	12
Dysentery	8	3	27	4
	3,901	1,815	2,697	1,269

Enquiries were made into all these cases; 1,303 cases of influenzal pneumonia were visited and nine received assistance from nurses appointed for the purpose, 68 revisits being made.

DYSENTERY.

During 1930 27 cases of dysentery were reported in the city in addition to four cases which were brought into the Port of Liverpool on shipboard. Many of the cases reported in recent years are persistent infections acquired abroad on military service or otherwise. Two of the cases were amœbic dysentery contracted abroad. Four were residents of outside districts admitted to Liverpool hospitals for treatment.

Two outbreaks occurred, in which several members of one family were affected. In one of these, five children aged from four months up to seven years old were taken ill in March, and in the second, four children aged from three to ten years of age during July. The first outbreak was due to a Sonne type of dysentery bacillus, but the causal organism of the second outbreak was not ascertained.

There were four deaths from dysentery during the year.

It is probable that some of the deaths registered as from diarrhœa and enteritis are really deaths from dysentery.

DIGESTIVE DISEASES AND DIARRHŒA.

The following table shows the mortality from digestive diseases—including diarrhœa—in the City of Liverpool during the last 60 years :—

TABLE I.

		Actual Deaths.	Deaths expressed as a percentage of deaths from all causes.	Death-rate per 1,000 population.	Death-rates as a percentage of the 1871-1880 rate.
1871-1880 ...	...	14,747	10·0	2·8	100·0
1881-1890 ...	...	13,186	9·4	2·4	85·7
1891-1900 ...	...	18,491	12·7	3·0	107·2
1900-1910 ...	...	18,163	12·0	2·5	89·3
1911-1920 ...	...	12,282	8·9	1·59	56·7
1921-1925 ...	...	5,111	8·8	1·23	43·9
1926 ...	...	952	8·2	1·12	40·0
1927 ...	...	794	6·7	0·93	33·2
1928 ...	...	784	6·8	0·90	32·1
1929 ...	...	828	6·3	0·95	34·0
1930 ...	...	663	5·9	0·75	26·8

THE LIVERPOOL FREE-TRADE SOCIETY, 1890-1901

THE LIVERPOOL FREE-TRADE SOCIETY, 1890-1901

THE LIVERPOOL FREE-TRADE SOCIETY, 1890-1901

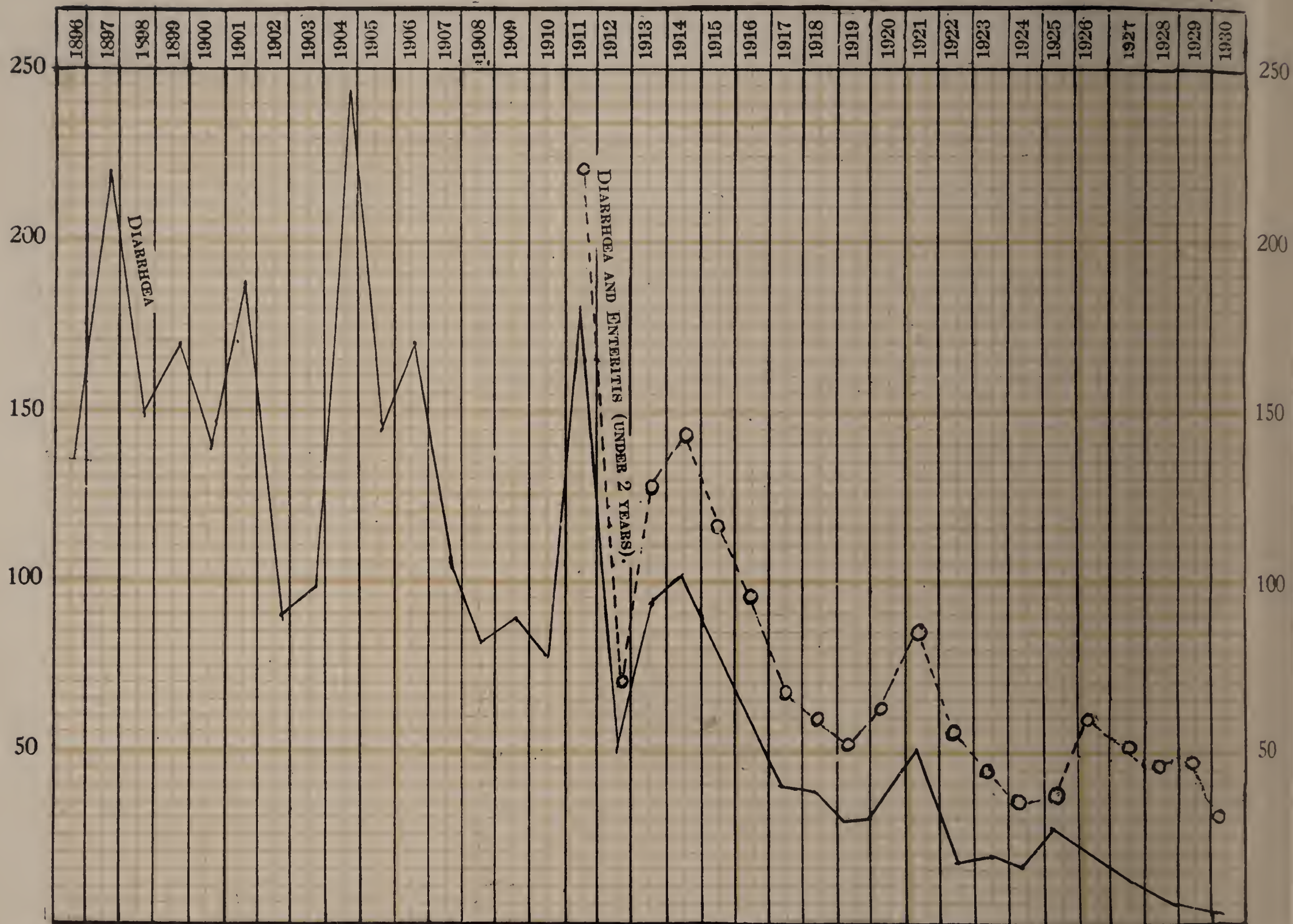


CITY OF LIVERPOOL

DIARRHŒA DEATH RATES (ALL AGES), PER 100,000 POPULATION, 1896-1930

TOGETHER WITH THE COMBINED RATE FROM DIARRHŒA

AND ENTERITIS (UNDER 2 YEARS), FOR 1911-1930.



The deaths from digestive diseases, which had been very numerous prior to 1871, fell in the penultimate decade of last century, but rose again in the last decade. Since the early years of the present century there has been a marked decline in the number of deaths. This was especially so during the latter years of the war.

DEATHS FROM DIARRHŒA AND ENTERITIS.

Diarrhœa and enteritis form a large part of the deaths from digestive diseases. Of these deaths approximately two-thirds occur in infants under one year of age.

In 1930 the mortality from diarrhœa and enteritis at all ages amounted to 304, of which number 274 were under two years of age, equal to a rate of 31 per 100,000 of the population. A noticeable feature of recent years has been that the height of the summer epidemic, which formerly occurred in August, about the 31st week of the year, has occurred progressively later and later in the year. In 1930 the maximum number of deaths was reported on the 47th week. The very large diminution in the size of the epidemic in recent years and its concurrent retardation are well shown when comparison is made with the mortality in the year 1904. In that year the peak of the epidemic was reached in the thirty-third week, no fewer than 259 deaths from diarrhœa alone being recorded in that week, as against 10 the greatest number in any week during 1930, i.e., almost exactly one-twenty-sixth of the number recorded 25 years ago.

The mortality rate per 1,000 of the births registered in the City during the last two years from diarrhœa and enteritis (under 2 years of age) was 7·2. The mortality in the several districts of the city is shown in the subjoined table :—

TABLE II.

		Registered Births		Deaths.		Death Rate per 1000 births registered during the current and preceding years.			
		1929-30.		1930.					
						1929.		1930.	
Exchange	...	...	5,026	...	62	...	17·3	...	12·3
Abercromby	...	...	1,876	...	14	...	21·8	...	7·4
Everton	...	...	5,709	...	38	...	12·9	...	6·6
Kirkdale	...	...	2,938	...	31	...	10·0	...	10·5
Edge Hill	...	...	3,689	...	23	...	5·4	...	6·2
Toxteth	...	...	5,940	...	35	...	6·9	...	5·9
Walton	...	...	2,887	...	10	...	8·2	...	3·4
West Derby	...	...	3,666	...	27	...	12·9	...	7·4
Wavertree	...	...	3,092	...	21	...	5·0	...	6·8
Fazakerley	...	...	2,769	...	11	...	—	...	3·9
Woolton	...	...	177	...	2	...	9·0	...	11·3
		37,769		...	274	...	10·3	...	7·2

NOTE.—All deaths occurring in public institutions have been transferred to the districts from which the patients came.

The corresponding rates for the whole city during the last five years were 10·3, 13·3, 9·9, 9·9 and 10·3 per 1,000 births registered in the preceding two years.

Of the 274 deaths under 2 years of age, the majority, namely, 204, took place in public institutions, as shown in the following table:—

TABLE III.

DEATHS FROM DIARRHOEA AND ENTERITIS UNDER TWO YEARS OF AGE.
IN INSTITUTIONS DURING 1930.

Alder Hey Hospital	...	...	...	...	159
Royal Liverpool Children's Hospital	...	...	...	...	16
Walton Hospital...	...	...	...	...	1
Mill Road Infirmary	...	...	...	...	5
Smithdown Road Hospital	...	...	...	...	1
David Lewis Northern Hospital	...	...	...	...	6
Royal Southern Hospital	...	...	...	...	2
Belmont Road Institution	...	...	...	...	12
City Hospital, Fazakerley	...	...	...	...	2
					<hr/> 204 <hr/>

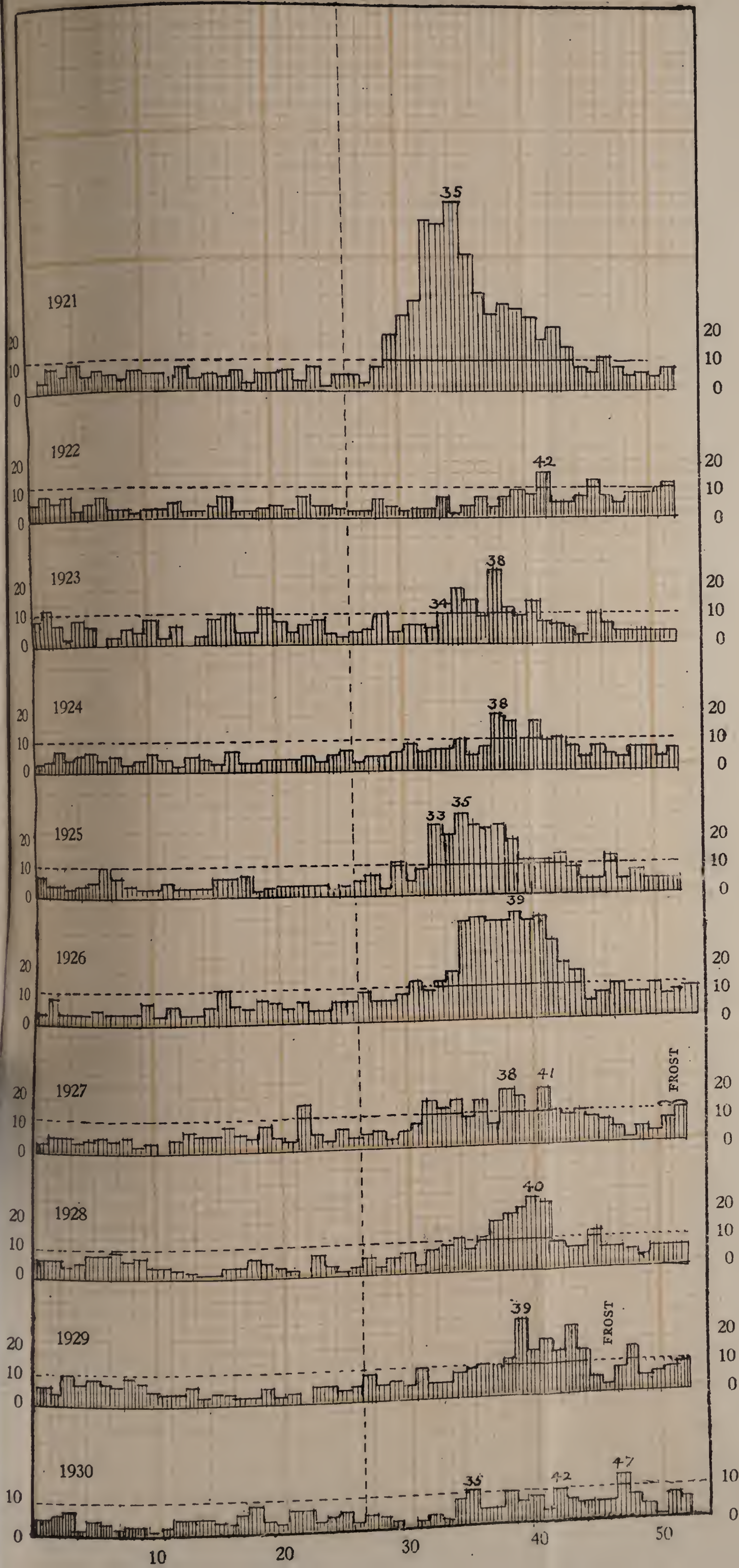
ENQUIRIES INTO FATAL CASES (under 2 years of age).

Since 1926 enquiries have been made into all deaths from diarrhoea and enteritis under two years of age. Up till 1911 the Registrar General classified deaths from "diarrhoea" separately from those included under the heading "enteritis." Since that date there has been included under the rubric "diarrhoea and enteritis under two years of age" a somewhat miscellaneous group of deaths.

Formerly many deaths occurred from an acute infective disease, or group of diseases, of which the predominating symptoms were an acute onset with diarrhoea and vomiting, often preceded by convulsions, and terminating rapidly in children under two years of age, from depletion of the body fluids. This disease assumed the form of an annually recurring summer epidemic, which had a well-marked maximum in August or September. This influence is still operative, though to a much lesser degree. The figures given in Table V show

CITY OF LIVERPOOL.

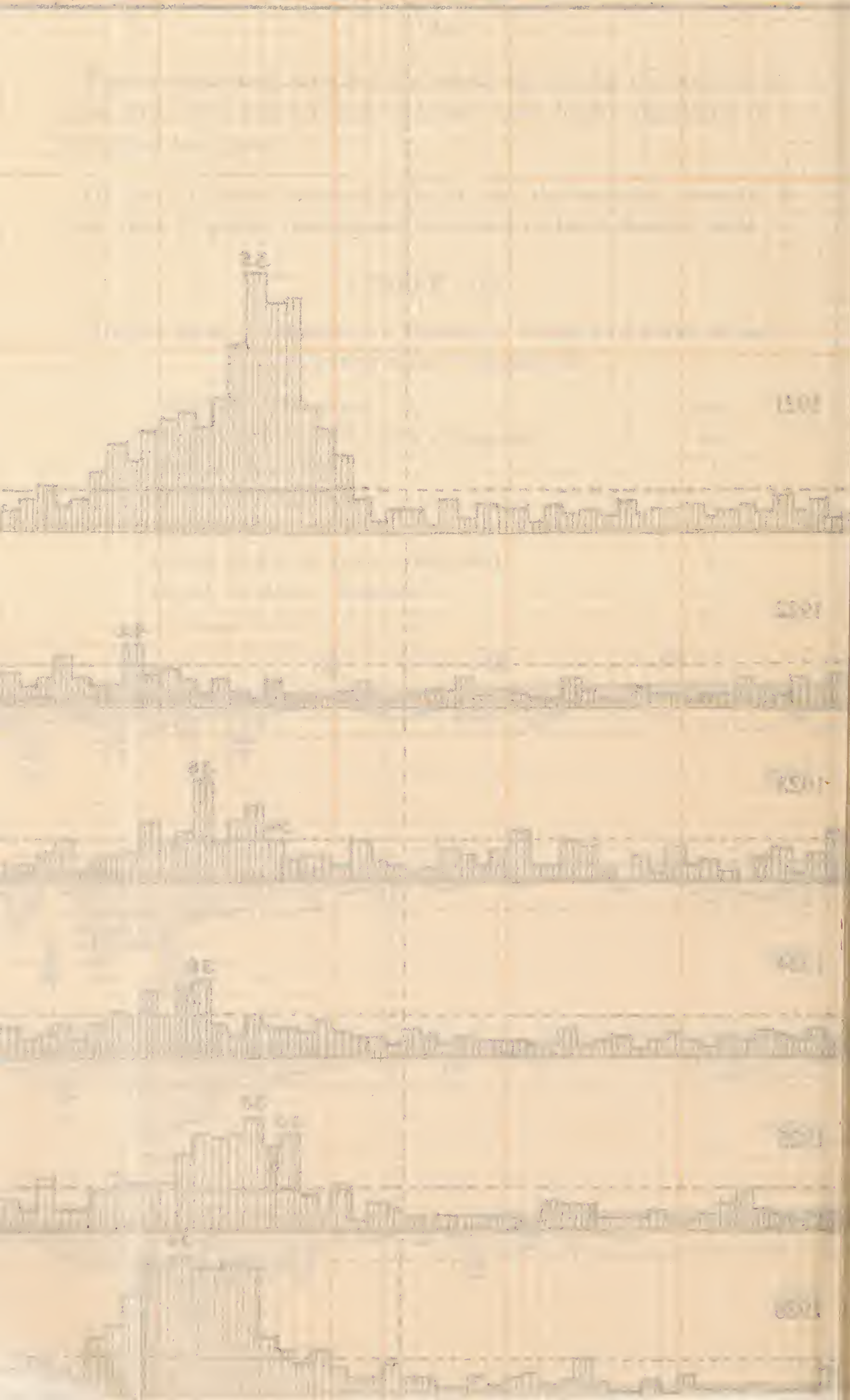
DEATHS FROM DIARRHŒA & ENTERITIS (UNDER 2 YEARS OF AGE) DURING THE
TEN YEARS 1921—1930.



CITY OF LIVERPOOL

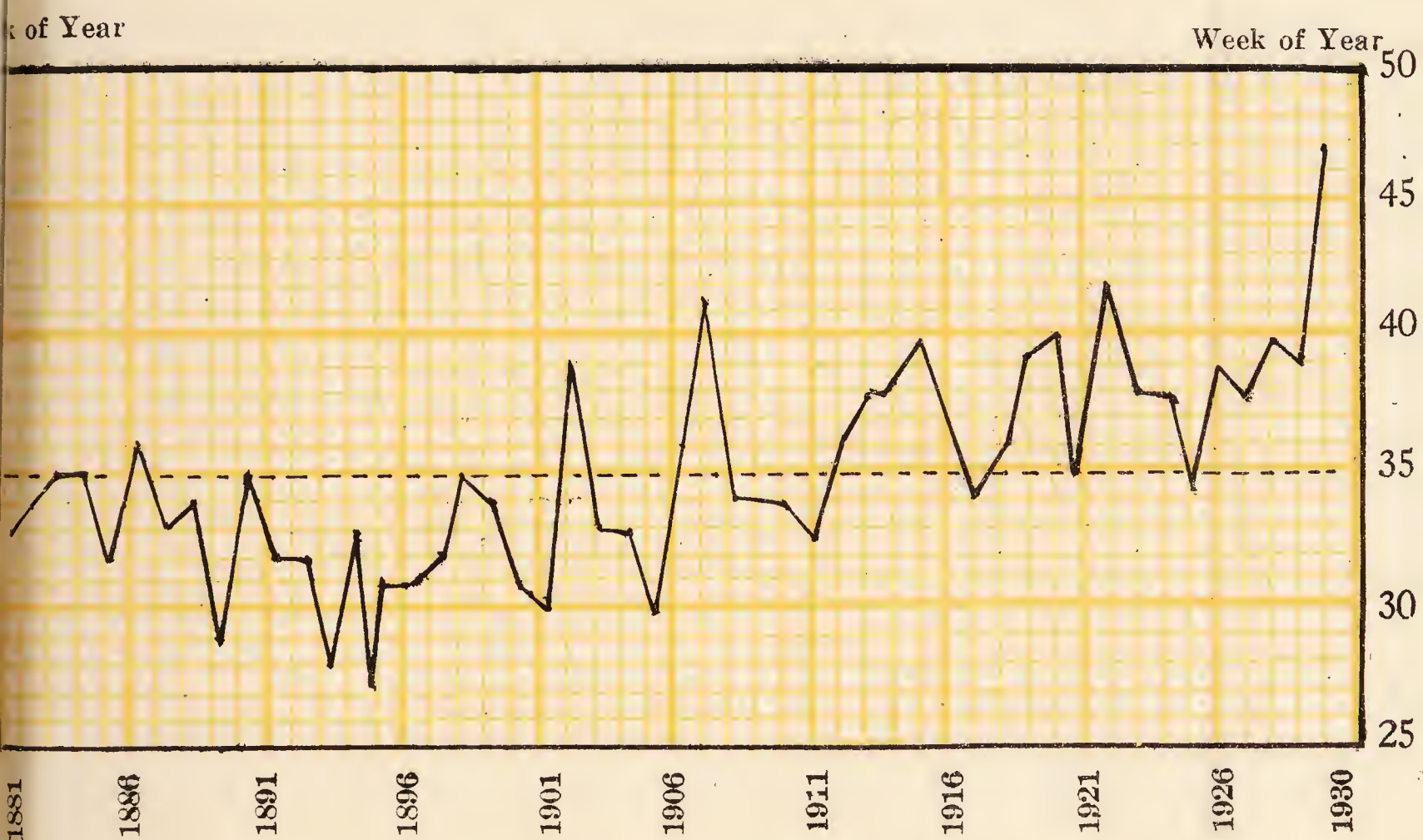
LOCATED FROM PLANNING & ENTERING (UNDER 2 YEARS TO AGE) DURING

TEN YEARS 1921-1930



CITY OF LIVERPOOL

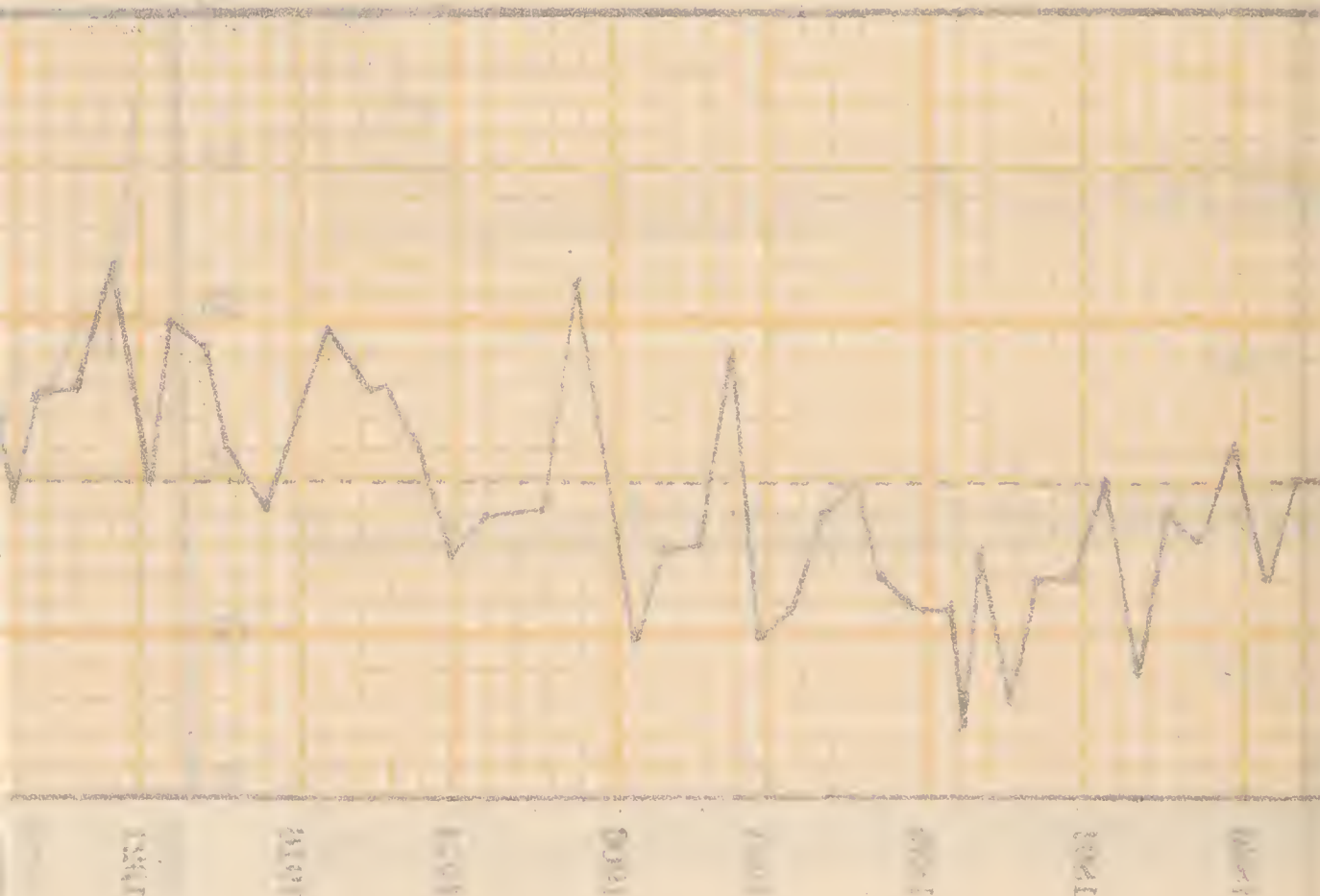
Graph showing for each of the 50 years 1881-1930 the week in which the maximum number of deaths from Diarrhoeal Diseases was recorded. This Graph shows the progressive retardation of the height of the seasonal wave, a retardation which has occurred concurrently with the great decline and virtual extinction of Diarrhoea, as a cause of death.



CITY OF LIVERPOOL

Graph showing for each of the 20 years 1841-1900 the annual number of deaths from Typhoid Fever, and showing the percentage variation in the height of the curve, variation which has occurred consistently with the great decline in extension of Typhoid, as a cause of death.

Year



that twice as many deaths occurred in the second half of the year as in the first half.

The title *diarrhœa* is rapidly disappearing from the statistics of death. During 1930 there were only 27 deaths (of which 24 were under two years of age) thus certified, there being four in each of the first two quarters, 14 in the third quarter, and five in the fourth. This title was to some extent replaced by the terms *enteritis* or *gastro-enteritis* or *ileo-colitis*. It might appear that these titles indicated diseases definitely located in the intestines. But this is far from being the case. Actually the terms "diarrhœa," "summer diarrhœa," "diarrhœa and vomiting," and the like did commonly refer to a definite disease, epidemic in occurrence, most frequent in hot seasons, and spread largely by flies. But the titles *enteritis* and the like, as now used, refer mainly to terminal conditions of intestinal derangement occurring in children either chronically sick from wasting diseases, and hence better classified under the title of *marasmus*, or acutely ill with pneumonia, bronchitis or other acute infection of origin entirely different from that of the once-prevalent diarrhœal diseases. And in yet another group of deaths the principal factor in causing death has been prematurity or other congenital condition.

RESULTS OF ENQUIRY.

Enquiries were made into 262 of the deaths recorded. In some instances the parents could not be traced.

It was found that in 34 cases there was a predominant history of wasting or *marasmus*, in many of which diarrhœa was entirely absent. In 35 cases the onset of *enteritis* had been preceded by an attack of pneumonia or bronchitis, and in eight others by measles, whooping cough or scarlet fever. In 48 instances, where deaths were ascribed to *enteritis*, there was no diarrhœa.

Congenital conditions accounted for a number of deaths in which diarrhœa did not occur. In four instances there was present a congenital disease probably quite adequate in itself to cause death. In 10 cases the infant was known to have been premature; in a further 10 cases the infant was a twin. In many cases the infant was said to have been delicate from birth.

NEO-NATAL DEATHS.

Eighteen deaths were of infants under 1 month old, the ages given being :—

Under 1 week	...	...	...	...	.	2
1 week	...	...	...	...	...	6
2 weeks	...	...	...	...	...	5
3 weeks	...	...	...	...	...	4
4 weeks	...	...	...	...	...	1

Acute intestinal infections are uncommon at these early ages, when the child is almost invariably breast-fed. In nine of these cases the main, if not the only symptom, was convulsions, the ages being (1) 6 days, (2) 1 week, (3) 2 weeks, (4) 2 weeks, (5) 1 week, (6) 3 weeks: a difficult confinement, the child's leg having been fractured during birth (7) 2 weeks, (8) 3 weeks, (9) 1 week. It is probable that in most of these cases the death was caused by birth injuries during difficult labour, the convulsions having been erroneously ascribed to enteritis.

In two other cases the child suffered from pemphigus neonatorum and the onset of enteritis was merely an incident of that fatal disorder. Other causes of death were hæmorrhage from bowels (melæna neonatorum), broncho-pneumonia, thrush, spina bifida, prematurity and bronchitis. In only two instances were vomiting and diarrhœa present.

OTHER ASSOCIATED DISEASES.

Apart from the respiratory diseases, 35 in number, referred to in a preceding paragraph, the following conditions were present in 20 cases and in most cases were the cause of the child's admission to hospital :—

Impetigo	...	...	...	...	...	6 cases.
Eczema	...	...	...	...	...	3 „
Other skin diseases	...	...	...	...	...	2 „
Hernia	...	...	...	...	...	3 „
Otitis	...	...	...	...	...	1 „
“ Tumour ”	...	...	...	...	...	1 „
Thrush	...	...	...	...	...	1 „
Stomatitis	...	...	...	...	...	1 „
Pyelitis	...	...	...	...	...	1 „
Omphalitis	...	...	...	...	...	1 „

It seems almost certain that these various conditions played a large part in causing the deaths of these infants.

MATERNAL ILLNESS OR DEATH.

The care of the mother is so essential to the wellbeing of the new-born child that it is not surprising that in the following 21 cases the serious illness or death of the mother was followed by the death of the child :—

Puerperal fever or sepsis	...	...	...	6 cases.
Tuberculosis	...	...	...	2 „
Pneumonia or pleurisy	...	...	...	2 „
Died at birth	...	...	...	2 „
Skin disease	...	...	...	2 „
Mastitis, operation	...	...	...	1 case.
Vague illness	...	...	...	6 cases.

Such severe illness necessarily involved the weaning of the child.

SOCIAL CONDITIONS.

Ten, at least, of the children were illegitimate, and the baby having been admitted to some institution at an early age had necessarily been weaned for this purpose. In 15 instances of infants who died in institutions the parents could not be traced at the address given.

METHOD OF FEEDING.

The great majority of the children were artificially fed in whole or in part. Artificial feeding not only predisposes the child to a fatal infection, rendering it more susceptible, but provides the medium, usually milk, by which the infection is conveyed. Divided according to the method of feeding the cases were :—

52 entirely breast fed.

14 mixed breast fed and artificial.

85 first breast fed, later artificially.

19 no history obtainable

92 artificially fed.

262 Total.

The influence of artificial feeding in the causation of these deaths is manifest. Babies should not be weaned during the season of the year when diarrhœa is prevalent—July to October—if this can be avoided.

TABLE IV.

DIARRHOEA AND ENTERITIS (under 2 years of age), 1924-1930.

DEATH-RATE PER 1000 BIRTHS REGISTERED DURING THE YEAR OF OBSERVATION AND THE PRECEDING YEAR. DEATHS IN INSTITUTIONS ARE ALL REFERRED TO THE DISTRICT OF RESIDENCE.

District.	1924	1925	1926	1927	1928	1929	1930
Exchange ...	14·9	31·1	29·4	17·7	16·5	17·3	12·3
Abercromby ...	7·7	14·5	12·7	11·8	10·9	21·8	7·4
Everton ...	8·6	8·8	13·4	10·9	9·3	12·9	6·6
Kirkdale ...	5·1	11·3	13·4	11·1	9·9	10·0	10·5
Edge Hill ...	6·9	6·8	9·9	5·5	6·5	5·4	6·2
Toxteth ...	7·1	9·5	9·9	7·4	7·5	6·9	5·9
Walton ...	5·0	3·8	14·0	6·4	6·2	8·2	3·4
West Derby ...	6·4	3·5	6·0	4·3	11·4	12·9	7·4
Wavertree ...	4·7	5·0	6·4	4·1	5·8	5·0	6·8
Fazakerley ...	4·0	4·3	9·1	5·0	0·0	1·7	3·9
Woolton ...	0·0	15·2	30·9	6·3	15·5	9·0	11·3
WHOLE CITY	7·7	10·3	13·3	9·9	9·9	10·3	7·2
BIRTH RATE	24·6	23·3	23·3	22·2	22·1	21·6	21·5

TABLE V.

DEATHS FROM DIARRHŒA AND ENTERITIS
(UNDER TWO YEARS).

DISTRICTS.	QUARTERS.								YEAR 1930.		
	March.		June.		Sept.		Dec.				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Total
Exchange	5	3	8	3	12	11	11	9	36	26	62
Abercromby .....	...	1	4	1	1	...	4	3	9	5	14
Everton	2	3	9	4	4	6	5	5	20	18	38
Kirkdale	1	1	3	2	4	5	7	8	15	16	31
Edge Hill	3	4	2	2	1	3	6	2	12	11	23
Toxteth	7	5	1	3	3	2	8	6	19	16	35
Walton	1	...	2	2	1	...	2	2	6	4	10
West Derby	2	...	5	3	3	3	6	5	16	11	27
Wavertree	2	2	5	2	3	2	3	2	13	8	21
Fazakerley	2	3	2	...	1	...	1	2	6	5	11
Woolton	1	...	1	...	...	...	...	...	2	...	2
City	26	22	42	22	33	32	53	44	154	120	274

AGES AT DEATH.

Under 1 year	...	...	...	...	...	...	231
1 to 2 years	...	...	...	...	...	...	43
TOTAL	...	...	...	...	...	...	274

DEATHS FROM DIARRHOEA AND ENTERITIS SEPARATELY.

	QUARTERS.				YEAR.
	1ST.	2ND.	3RD.	4TH.	
Diarrhœa	4	4	11	5	24
Enteritis	44	60	54	92	250
Total ...	48	64	65	97	274

[B.—Deaths in public institutions are transferred to the districts from which the patients came.

MODE OF INFECTION.

It seems probable that about half the deaths included under the heading diarrhœa and enteritis were from an acute or sub-acute primary infection of the stomach and bowels. Enquiries were made in all cases, but in only 10 instances, apart from children living in institutions, was contact with a preceding case in the household established, this occurring once in June, twice in August, three times in September, three times in October, and once in November. The sickness in older children and adults is, however, often of a trivial character and liable to be overlooked.

The cases are notably more prevalent in the central portions of the town, more especially in the Exchange registration district, as will be seen by reference to Table IV. Some parts of the city escape almost entirely from this disease. The consistent efforts to reduce the mortality have not, however, been without effect, and the rate recorded in 1930 for the Exchange (12·3) is less than that recorded for the whole city (14·6) in 1921. The annual increase in the late summer and autumn coincides with the hottest part of the year, and whilst climatic changes and alterations in the character of the artificial food given to the infants undoubtedly predispose to the infection there can be little doubt that the seasonal increase of infection is mainly an increased carriage of infection by flies. The fatal issue was, however, predisposed, in a large number of cases, by the various diseases and causes of ill-health set forth in preceding paragraphs.

Enquiries were made in all fatal cases as to the prevalence of flies in the home at the time of onset of illness. For a number of years wherever an excessive prevalence of flies is reported, this is referred to the sanitary department for investigation. Excessive prevalence of flies coincides with outbreaks of diarrhœa in epidemic form, as has been repeatedly shown in former reports of the Medical Officers.

The experience of previous years points strongly to the importance of flies as carriers of infection and that collections of stable manure form the most important breeding places for these insects. Regular visits of inspection are paid to stables and the occupiers are informed as to the desirability of regular weekly removals of manure (see page 174). The following notice has been issued to the owners of stables in recent years with the object of securing the frequent removal of manure from the latter :—

NOTICE.

REMOVAL OF MANURE FROM STABLES.

The Health Committee is very desirous that Manure from Stables should be removed with as little delay as possible, and with this object in view, arrangements have been made with the City Engineer for its speedy removal.

On application to the City Engineer, Municipal Offices, Dale Street, Manure will be removed from stable yards as often as required, free of charge.

NOTIFICATION OF INFECTIOUS DISEASE.

The following is a list of the diseases notifiable in the City of Liverpool during 1930 :—

Anthrax	Membranous Croup
Anterior Poliomyelitis	Ophthalmia Neonatorum
Cerebro-spinal Fever	Paratyphoid Fever
Cholera	Plague
*Chickenpox	Pneumonia, Acute Influenzal
Continued Fever	Pneumonia, Acute Primary
Diphtheria	Polioencephalitis, Acute
Dysentery	Puerperal Fever
Enteric (Typhoid) Fever	Puerperal Pyrexia
Erysipelas	Relapsing Fever
Encephalitis Lethargica, Acute	Scarlet Fever or Scarlatina
*German Measles	Smallpox
*Measles	Tuberculosis (all forms)
Malaria	Typhus Fever

The number and monthly distribution of notifications received by the Medical Officer of Health during the past year were as follows :—

								<u>1930.</u>
January	...	...	...	...	...	...	...	1,406
February	...	...	...	...	...	...	...	1,355
March	...	...	...	...	...	...	...	1,348
April	...	...	...	...	...	...	...	1,173
May	...	...	...	...	...	...	...	1,284
June	...	...	...	...	...	...	...	1,295
July	...	...	...	...	...	...	...	1,064
August	...	...	...	...	...	...	...	851
September	...	...	...	...	...	...	...	1,219
October	...	...	...	...	...	...	...	1,605
November	...	...	...	...	...	...	...	2,032
December	...	...	...	...	...	...	...	2,835
								<u>17,467</u>

* Measles and German Measles ceased to be compulsorily notifiable on 31st October, 1920, but a system of voluntary notification has been continued as is also the case with Chickenpox.

The following table shows the number, monthly distribution, and nature of cases of infectious disease coming under the notice of the Medical Officer of Health during the year by notification of medical practitioners and in other ways.

	January	February	March	April	May	June	July	August	September	October	November	December	TOTALS	Removed to hospital
Smallpox.	...	...	...	...	...	...	1	...	...	...	...	...	1	1
Plague.	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever.	2	1	5	4	6	9	10	11	1	3	3	5	60	47
Scarlet Fever.	407	336	366	271	305	199	177	182	192	201	223	210	3069	2611
Measles and German Measles.	99	166	267	192	360	374	291	226	294	676	1165	1856	5966	840
Diphtheria	294	350	381	270	370	291	266	271	386	301	435	408	4023	3849
Puerperal Fever.	3	2	3	...	5	1	5	2	2	7	8	5	43	36
Puerperal Pyrexia	7	13	15	10	4	12	9	8	11	7	15	14	125	93
Erysipelas.	68	72	72	50	68	56	44	57	47	59	73	54	720	321
Cerebro-spinal Fever.	..	3	2	...	2	2	2	...	2	2	5	1	21	21
Poliomyelitis and Polioencephalitis	5	1	1	1	...	...	...	1	1	1	2	1	14	10
Ophthalmia Neonatorum.	31	57	53	53	61	47	50	53	37	40	73	55	610	38
Pneumonia & Influenzal Pneumonia.	157	323	316	161	207	147	112	99	113	190	375	345	2545	1163
Malaria.	16	3	9	6	4	12	15	16	10	11	13	10	125	81
Dysentery.	4	1	6	2	1	1	5	1	1	3	1	1	27	27
Encephalitis Lethargica.	1	3	3	...	1	2	7	3	1	...	5	1	27	12
Whooping Cough.	164	172	162	83	150	105	21	90	51	30	60	59	1147	78
Anthrax.	1	1	...	...	1	...	...	...	...	...	...	...	3	3
Chickenpox	314	218	419	202	370	312	124	102	67	130	177	132	2567	181
Totals ...	1573	1722	2080	1305	1915	1570	1139	1122	1216	1661	2633	3157	21093	9412

The number of patients removed to hospital includes those admitted to the general hospitals, as well as those admitted to the city infectious diseases hospitals.

The following table gives a summary of cases of infectious disease coming under the notice of the Medical Officer of Health during the last six years :—

DISEASE.	1925	1926	1927	1928	1929	1930
Smallpox	—	—	1	2	2	1
Plague	—	2	—	—	—	—
Typhus Fever	—	—	—	—	—	—
Enteric Fever	35	42	67	30	23	60
Scarlet Fever	3,561	2,244	1,640	2,193	3,989	3,069
Measles and German Measles	11,202	8,694	10,606	6,025	10,546	5,966
Diphtheria	1,504	1,519	1,664	1,902	2,336	4,023
Puerperal Fever.....	56	64	51	51	41	43
Erysipelas	525	567	611	623	711	720
Cerebro-spinal Fever	24	16	25	21	23	21
Poliomyelitis and Polioen- cephalitis	4	19	15	6	21	14
Ophthalmia Neonatorum ...	703	649	636	545	584	610
Anthrax	5	4	9	7	4	3
Encephalitis Lethargica	108	114	69	54	28	27
Whooping Cough	2,274	1,971	1,988	2,313	1,876	1,147
Malaria	52	56	64	77	63	125
Dysentery	8	8	8	4	8	27
Chickenpox	3,788	3,129	3,269	2,446	2,800	2,567

Table shewing the deaths from infectious disease occurring during the last six years :—

DISEASE.	1925	1926	1927	1928	1929	1930
Smallpox	—	—	—	—	—	—
Plague	—	1	—	—	—	—
Typhus Fever.....	—	—	—	—	—	—
Enteric Fever	5	6	10	4	8	1
Scarlet Fever	93	24	12	19	41	35
Measles and German Measles	406	221	345	177	427	170
Diphtheria	106	112	90	100	139	236
Influenza.....	178	141	268	99	408	75
Puerperal Fever.....	21	28	25	19	26	16
Erysipelas	24	30	24	22	34	24
Cerebro-spinal Fever	15	12	21	16	21	17
Poliomyelitis and Polioen- cephalitis	1	5	2	5	10	6
Anthrax	2	2	1	2	2	1
Encephalitis Lethargica	44	29	25	24	26	18
Whooping Cough	227	188	125	269	198	75
Malaria... ..	3	4	3	5	5	12
Dysentery	4	5	6	3	3	4
Chickenpox.....	4	5	3	3	8	3

THE ANNUAL AVERAGE **NUMBER OF DEATHS** FROM THE PRINCIPAL ZYMOTIC DISEASES, DURING EACH OF THE SIX DECENNIAL PERIODS, 1866-1925, COMPARED WITH THE ACTUAL NUMBER OF DEATHS FOR THE YEAR 1930, SHOWS THE DECLINE IN MOST OF THE FORMIDABLE FORMS OF INFECTIOUS DISEASE.

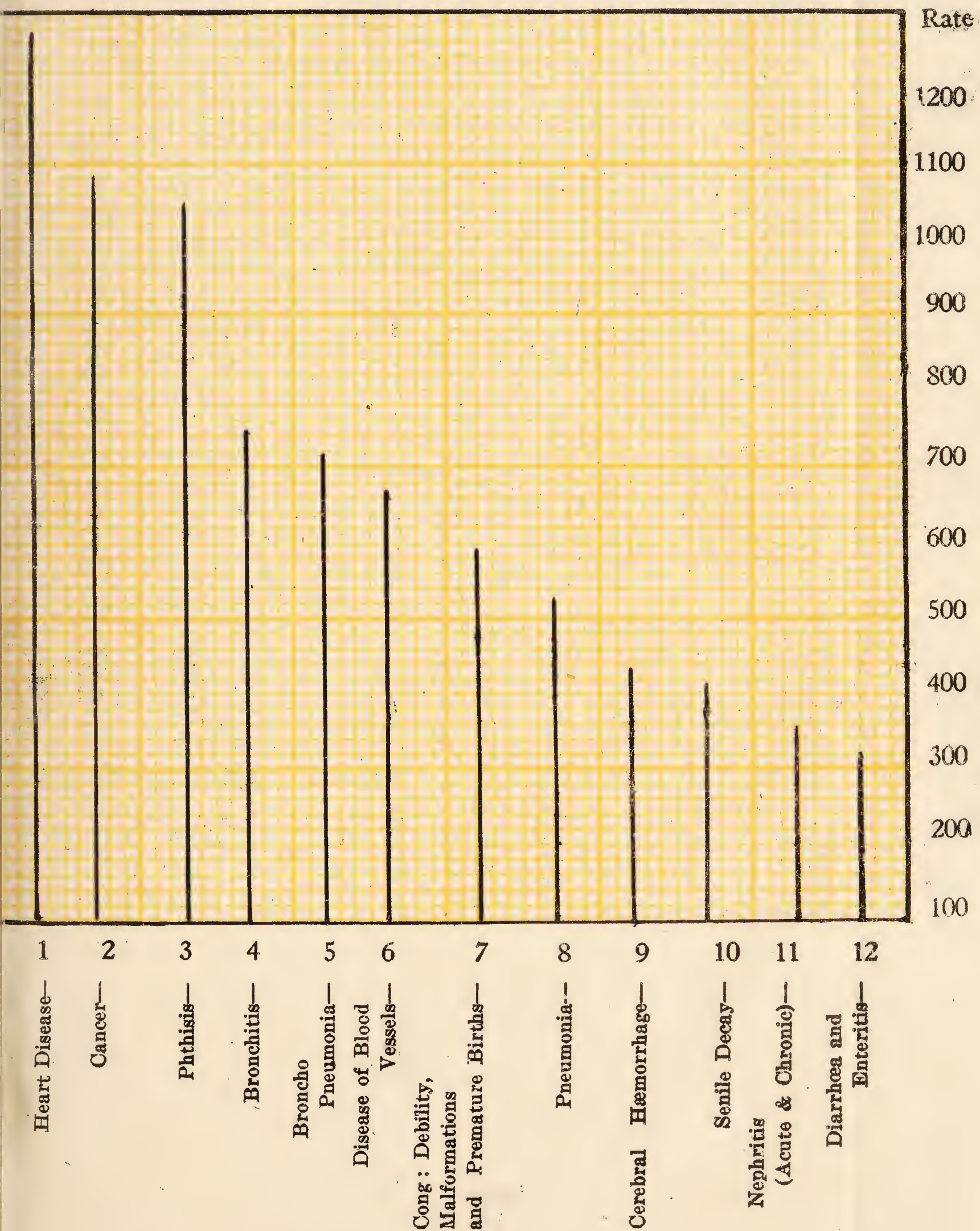
Years.	Smallpox.	Scarlet Fever.	Diphtheria.	Measles.	Whooping Cough.	Typhus Fever.	Enteric Fever.	Diarrhœa.
1866 to 1875	237·4	789·4	58·5	425·7	496·8	652·8	† —	995·3
1876 to 1885	90·8	421·2	65·7	517·8	472·3	238·0	126·4	658·4
1886 to 1895	8·8	257·5	76·7	399·5	322·4	37·1	153·0	600·6
*1896 to 1905	19·5	201·3	149·9	329·0	330·4	25·1	134·4	1,061·9
*1906 to 1915	0·3	141·6	112·6	438·0	296·7	5·7	50·3	848·0
1916 to 1925	0·4	69·4	136·6	300·6	195·6	0·2	8·6	254·4
1930	—	35	236	170	75	—	1	27

* Including extended City area.

† Records not available.

CITY OF LIVERPOOL

COMPARATIVE VIEW OF TWELVE OF THE PRINCIPAL CAUSES OF DEATH
DURING THE YEAR 1930.



ANNUAL AVERAGE **NUMBER OF DEATHS** FROM THE PRINCIPAL ZYMOTIC DISEASES DURING EACH OF THE FIVE DECENNIAL PERIODS, 1876-1925, TOGETHER WITH THE ACTUAL NUMBER OF DEATHS FOR THE YEAR 1930, DISTINGUISHING THOSE OF PERSONS ABOVE AND BELOW FIVE YEARS OF AGE.

YEARS.	SMALLPOX.		SCARLET FEVER.		DIPHTHERIA.		MEASLES.		WHOOPING COUGH.		TYPHUS FEVER.		ENTERIC FEVER.		DIARRHŒA.	
	Above 5.	Below 5.	Above 5.	Below 5.	Above 5.	Below 5.	Above 5.	Below 5.	Above 5.	Below 5.	Above 5.	Below 5.	Above 5.	Below 5.	Above 5.	Below 5.
1876 to 1885	62.5	28.3	137.0	284.2	24.1	41.6	35.4	482.4	18.6	453.7	+190.0	+5.1	+110.3†	12.1	61.9	596.5
1886 to 1895	6.2	2.6	87.6	169.9	24.4	52.3	28.3	371.2	15.1	307.3	36.2	.9	142.0	11.0	60.2	540.4
*1896 to 1905	14.5	5.0	61.7	139.6	44.0	105.9	17.1	311.9	11.9	318.5	24.2	.9	128.4	6.0	53.6	1,008.3
*1906 to 1915	.3	—	50.9	90.7	41.5	71.1	23.9	414.1	9.2	287.5	5.5	.2	49.0	1.3	30.8	817.2
1916 to 1925	.4	—	28.4	41.0	47.7	88.9	13.5	287.1	6.5	189.1	.2	—	8.5	.1	11.8	242.6
1930	—	—	17	18	154	82	12	158	1	74	—	—	1	—	3	24

† During the six years, 1880-1885.

* Including extended City area.

The following table shows the number of deaths, the annual average death rate per 100,000 of the population from the undermentioned forms of disease during the six decades, 1866 to 1925, and the year 1930 :—

DISEASE.		1866 to 1875.	1876 to 1885	1886† to 1895.	1896† to 1905.	1906† to 1915	1916 to 1925
	Average Population	493,405.	538,651.	536,974.	691,351.	749,267.	814,014
Scarlet Fever	Total Deaths ...	7,894	4,212	2,575	2,013	1,416	694
	Rate per 100,000 per annum.	159.9	78.1	47.9	29.1	19.0	8.5
Typhus Fever	Total Deaths ...	6,528	2,380	371	251	57	2
	Rate per 100,000 per annum.	132.2	44.1	6.9	3.6	0.8	0.2
Enteric Fever	Total Deaths ...	*	1,264	1,530	1,344	503	86
	Rate per 100,000 per annum.	—	21.5	28.4	19.3	6.7	1.5
Measles	Total Deaths ...	4,257	5,178	3,995	3,290	4,380	3,006
	Rate per 100,000 per annum.	86.2	96.1	74.3	47.5	58.6	36.9
Whooping Cough	Total Deaths ...	4,968	4,723	3,224	3,304	2,967	1956
	Rate per 100,000 per annum.	100.6	87.6	60.0	47.7	39.7	24.0
Smallpox	Total Deaths ...	2,374	908	88	195	3	4
	Rate per 100,000 per annum	48.1	16.8	1.6	2.8	0.4	0.5
Diphtheria	Total Deaths ...	2,129	2,434	1,655	1,955	1,239	1,366
	Rate per 100,000 per annum.	42.4	45.7	30.8	28.2	16.5	16.9
Phthisis	Total Deaths ...	16,476	13,754	11,436	12,632	12,010	11,489
	Rate per 100,000 per annum.	333.9	255.3	212.9	182.7	160.7	141.1

† City Boundaries extended in 1895, 1902, 1905, 1913.

* Records not available.

DEATHS DUE TO RHEUMATIC FEVER, PERICARDITIS AND ACUTE ENDOCARDITIS.

	1921.		1922.		1923.		1924.		1925.		1926.		1927.		1928.		1929.		1930.		TOTAL.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Rheumatic Fever	22	17	19	29	20	21	22	27	22	28	19	19	28	45	30	55	30	49	42	51	254	341
Pericarditis.....	4	4	8	2	7	2	10	5	5	4	4	5	7	3	6	3	10	4	6	9	67	41
Acute Endocarditis.....	50	36	55	74	49	49	39	55	38	44	23	42	29	43	24	31	34	53	18	33	359	460
TOTALS	76	57	82	105	76	72	71	87	65	76	46	66	64	91	60	89	74	106	66	93	680	842
	133		187		148		158		141		112		155		149		180		159		1,522	

Monthly Distribution of Rheumatic Fever Deaths.		1930.		1930.	
January ...	...	M.	F.	M.	F.
February ...	...	3	3	3	5
March ...	...	3	5	5	5
April ...	...	7	4	7	4
May ...	...	2	5	2	5
June ...	...	3	3	3	3
July ...	...	2	2	2	2
August ...	...	2	7	2	7
September ...	...	7	3	7	3
October ...	...	—	4	—	4
November ...	...	3	2	3	2
December ...	...	4	7	4	7
Inward Transfers	...	1	1	1	1
		42	51	42	51

DIABETES.

The following table shows the incidence of fatal cases of diabetes in Liverpool since 1890:—

	Actual Numbers.			Average.			Rate per 100,000 population.	Ratio of males to females
	Males.	Females.	Total.	Males.	Females.	Total.		
1890-1894	55	45	100	11·0	9·0	20·0	3·8	1·22
1895-1899	99	76	175	19·8	15·2	35·0	5·3	1·30
1900-1904	132	100	232	26·4	20·0	46·4	6·5	1·32
1905-1909	153	124	277	30·6	24·8	55·4	8·4	1·23
1910-1914	162	153	315	32·4	30·6	63·0	8·4	1·06
1915-1919	153	137	290	30·6	27·4	58·0	7·4	1·12
1920-1924	153	203	356	30·6	40·6	71·2	8·6	0·75
1925-1929	168	216	384	33·6	43·2	76·8	8·9	0·78
1929	28	34	62	28·0	34·0	62·0	7·1	0·82
1930	34	60	94	34·0	60·0	94·0	10·7	0·57

The death-rate from diabetes rose steadily up till 1910-14. It is probable that this rise was largely due to improved diagnosis. During the war the number of deaths showed a distinct fall, especially in 1917 and 1918; this was a real fall and not merely due to the absence of males on military service as, on the average of five years, females were equally affected with males. Since the war the figures have again risen, and are now above the average for the decade 1910-19. The disparity in the incidence, between the two sexes, previously in favour of the females, has since 1904 tended to change. In 1890-1894, 55 per cent. of the deaths were of males; but since 1920-25 the position has been reversed, and in 1930 only 36 per cent. were of males. It is not improbable that the greater attention that has recently been paid to this disease has led to its more frequent recognition as a factor in mortality.

The age at death has also greatly altered and, especially among males, there is a preponderance of deaths at ages over 60 and a reduction in deaths under this age. In the year 1910 66 per cent. of the deaths were under 65 years of age, in 1929 55 per cent., and in 1930 63 per cent.

DEATHS FROM CANCER.

During 1930 there were 1.080 deaths attributed to cancer, equivalent to a rate of 1.23 per thousand, a slight reduction on the rates experienced in 1928 and 1929. In 1871-1880 the rate of mortality was 0.4 per thousand; an increase of 207 per cent. has therefore occurred. The tables on pages 9 and 10 give the figures for the intervening years. Comparing the anatomical distribution in 1924-1928 and 1930 it will be observed that there is a tendency for deaths from cancer of the stomach, liver, etc., from cancer of the intestines, etc., and especially from cancer of other organs, mainly internal, to increase. Such fluctuations, however, are apt to occur under the influence of chance.

Since 1895 the increase in the number of deaths of males is 134 per cent. and of females 101 per cent., or an actual increase of 288 male and 290 female deaths per annum; the increase of population during this period being 241,366, or 37 per cent.

Part of the increase in mortality from cancer is due to the increased longevity of the population, more of whom survive into those periods of life when cancer is most frequent. Whilst during the last 50 years there has been an increase in recorded cancer mortality at each age period except the earliest, the increase is most marked at the three later age periods, that is at ages over 60 years. The increase in recorded cancer mortality is mainly at old age.

The increased mortality from cancer was, therefore, (a) mainly among males; (b) most marked in the later years of life. There is evidence to show that the increase is especially in the case of cancer of the stomach and other internal organs where the disease is most difficult to diagnose. A great part of the increase is probably not real but statistical, and due to improved diagnosis. The term, old age, for example, is less frequently used as a cause of death than in former years; doubtless many deaths from cancer were formerly concealed under this title.

CANCER.

DEATHS FROM CANCER, SHOWING THE PARTS OF THE BODY AFFECTED, DURING THE YEARS 1925 TO 1930.

Part of the Body affected.	1925.			1926.			1927.			1928.			1929.			Average 1925-29.			1930.		
	M.	F.	Total	M.	F.	Total	M.	F.	Total	M.	F.	Total	M.	F.	Total	M.	F.	Total	M.	F.	Total
Buccal Cavity	73	14	87	80	9	89	76	7	83	102	10	112	85	10	95	83	10	93	70	10	80
Stomach, Liver, etc	118	130	248	140	125	265	137	113	250	192	127	319	178	155	333	152	130	282	167	141	308
Intestines, etc	108	87	195	97	101	198	107	106	213	98	106	204	105	107	212	103	102	205	100	106	206
Breast	1	91	92	1	86	87	3	81	84	—	84	85	—	82	82	1	85	86	1	111	112
Female Genital Organs	—	91	91	—	100	100	—	110	110	1	115	115	—	107	107	—	105	105	—	81	81
Skin.....	7	3	10	10	6	16	4	7	11	8	4	12	11	4	15	8	5	12	7	7	14
Other or Unspec- ified Organs	190	85	275	166	72	238	156	70	226	150	103	253	186	74	260	169	81	250	158	121	279
Totals..	497	501	998	494	499	993	483	494	977	551	549	1100	565	539	1104	516	518	1034	503	577	1080

INFANT MORTALITY.

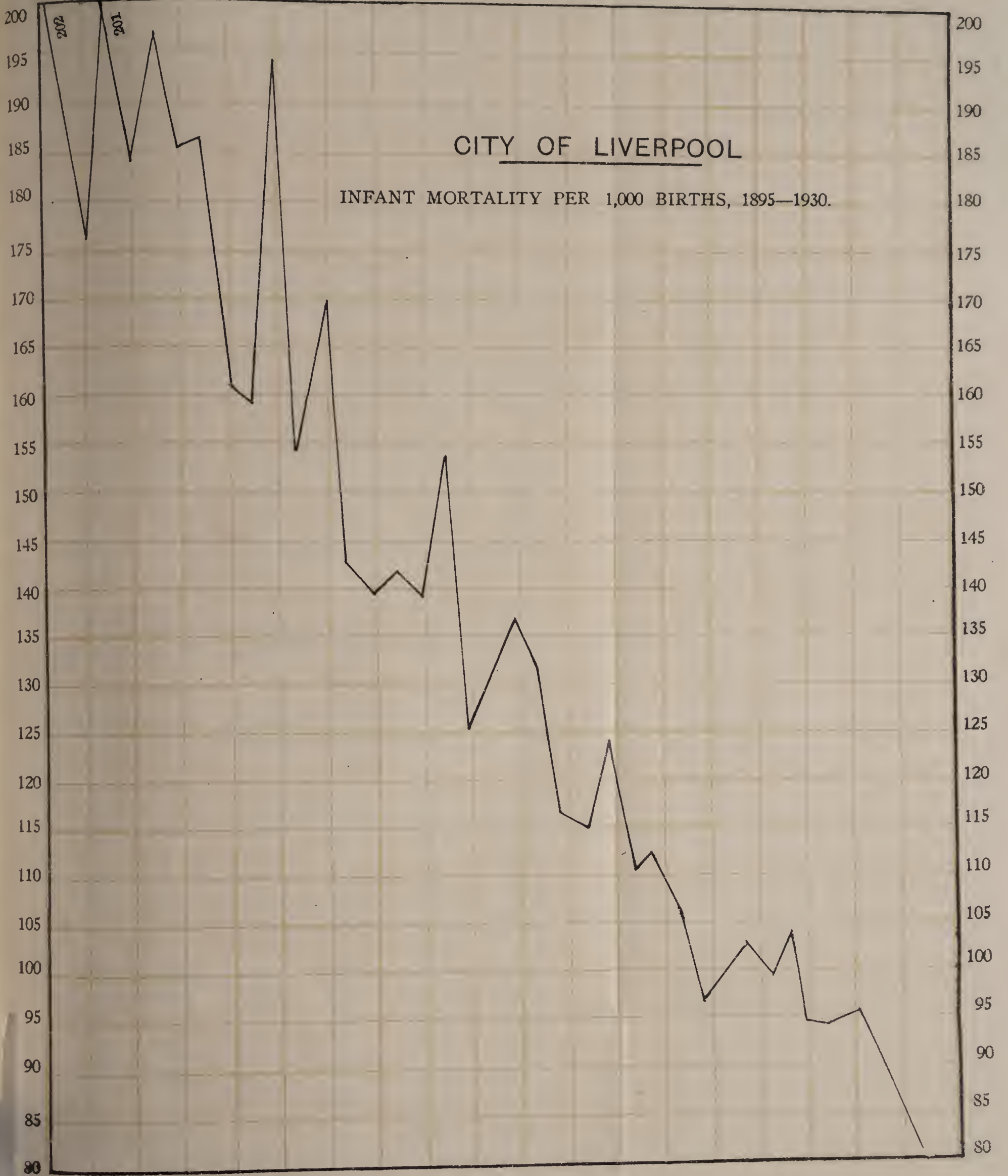
The infant mortality rate for 1930 is 82 per 1,000 births, the lowest figure as yet recorded. A glance at the chart facing page 74 will show that the rate, in spite of fluctuations in individual years, has steadily declined during the past twenty-five years. At the beginning of this period the figure was nearly 200 deaths per 1,000 births.

It is very gratifying to record this decline, and moreover, it may be noted that the numbers of deaths from all the usual forms of infantile diseases such as broncho-pneumonia, convulsions, prematurity, etc., have been reduced, but the most markedly affected cause is the one which, in former years, frequently proved the most fatal, namely, epidemic diarrhœa. The number of deaths under one year of age from this cause in the year 1930 was 274, as against an average of 1,000, or 1,100 twenty-five years ago. No doubt this result is due to a variety of causes, but one which has most materially hastened the decline is the initiation and carrying on by the Health Committee of schemes for the promotion of the welfare of motherhood and infancy, including the work of the health visitors, the day nurseries, pre-maternity and infant clinics and milk depots.

The following table shows the number of deaths of infants below one year of age and the rate per 1,000 births during the last thirty-one years :—

Year.	No. of deaths below one year of age.	Rate per 1,000 births.	Average for 10 years
1900	4,247	186	164
1901	4,138	187	
1902	3,936	162	
1903	3,815	159	
1904	4,780	196	
1905	3,752	154	
1906	4,137	171	
1907	3,383	143	
1908	3,355	140	
1909	3,377	143	
1910	3,216	139	129
1911	3,466	154	
1912	2,778	125	
1913	2,987	132	
1914	3,219	139	
1915	2,866	133	
1916	2,421	117	
1917	2,071	115	
1918	2,137	124	
1919	2,055	110	
1920	2,826	113	100
1921	2,339	107	
1922	2,052	96	
1923	2,058	99	
1924	2,113	103	
1925	1,935	99	
1926	2,066	104	
1927	1,781	94	
1928	1,789	94	
1929	1,822	96	
1930	1,544	82	

1895 6 7 8 9 1900 1 2 3 4 5 6 7 8 9 1910 1 2 3 4 5 6 7 8 9 1920 1 2 3 4 5 6 7 8 9 1930

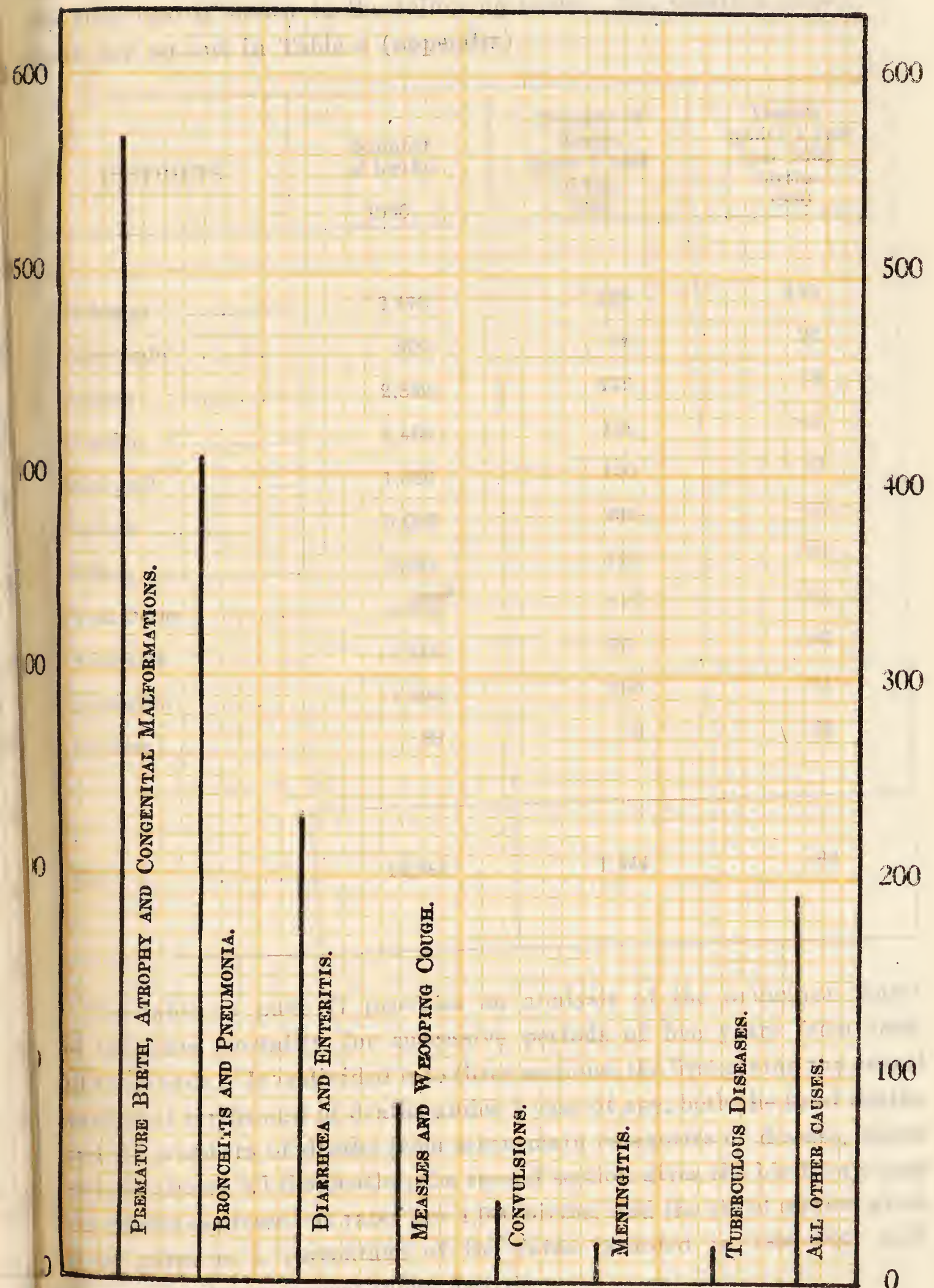


REVIEWS

THE UNIVERSITY OF CHICAGO

CITY OF LIVERPOOL

CHART SHOWING THE PRINCIPAL CAUSES OF DEATHS OF INFANTS,
UNDER ONE YEAR OF AGE, DURING 1930.



CITY OF LIVERPOOL

CHART SHOWING THE PRINCIPAL CAUSES OF DEATHS OF INFANTS UNDER ONE YEAR OF AGE, DURING 1930.



The relation which the deaths of infants under one year of age has borne to every thousand births in the various districts of the city during the year 1930 is shown in the following table. The detailed causes of death are set out in Table 4 (appendix).

DISTRICTS.	Number of births. 1930.	Number of deaths under 1 year of age. 1930.	Deaths under 1 year per 1000 births. 1930
Exchange	2,470	279	113
Abercromby	909	84	92
Everton	2,822	222	78
Kirkdale	1,465	151	103
Edge Hill	1,886	150	79
Toxteth	3,016	236	78
Walton	1,445	110	76
West Derby	1,810	118	65
Wavertree	1,543	86	56
Fazakerley	1,426	106	74
Woolton	89	2	22
City	18,881	1,544	82

The table on page 77 provides an analysis of the principal causes of infantile mortality for successive periods of five years from 1896-1900 onwards. It is divided into three sections, the first giving the *actual number* of births and of deaths under 1 year of age, both the total deaths and the numbers of deaths from seven main categories of disease, which include almost all the deaths; the second section gives the birth rate and the deaths expressed as rates per 1,000 births, and the third section gives these rates as a percentage of the rates recorded in 1896-1900, such percentages being termed index figures.

Examination of this table shows that whilst the annual number of births has remained approximately stationary, fluctuating from 22,340 to 18,881 per annum, the number of infantile deaths has fallen from 4,232 to 1,544, and the infantile death rate has accordingly fallen from 189 to 82 per 1,000 births; in other words, this rate has fallen to 45·4 per cent. of the figure recorded in 1896-1900. This great saving of life during the past 30 years coincides with the many improvements in housing and sanitation in Liverpool; and more particularly this fall has occurred simultaneously with the increasing attention which has been directed to infant welfare by the Health Department and other bodies, by the improvement in the provision of assistance for women in child birth and the advice and help extended to mothers and infants by health visitors, ante-natal, post-natal and infant clinics, hospitals and other agencies.

Investigation of the actual causes of death bears this out. The greatest reduction has occurred under the heading Nervous Diseases (reduction from 100 to 15·4), Tubercular Diseases (to 12·9), and Digestive Diseases to 23·1. The deaths included under the heading Nervous Diseases are mainly those certified as from convulsions, which are frequently a symptom of the onset of acute infective diarrhœa, by far the commonest cause of death in the group of digestive diseases. Convulsions may also occur at the onset of other infectious diseases, and further may result from injuries during birth. The heading Tubercular Diseases also formerly included many deaths ascribed to *Tabes Mesenterica*, a term of uncertain meaning, but probably including numerous cases of chronic diarrhœa. The reduction in these three groups of diseases—1,579 fewer deaths in 1930—is then mainly a reduction in deaths from diarrhœa.

Equally marked and even more satisfactory is the reduction in the number of deaths from "external causes," which includes overlaying (see page 138) and burns and scalds. The great reduction in the deaths placed in this category testifies to the greater care taken of children and infants by parents. Much less satisfactory are the figures relating to general diseases and respiratory diseases. The figures in column 8 relating to Malformations, Premature Birth, Marasmus, etc., although they show a considerable saving of life—over 500 lives saved per annum—and though doubtless containing many deaths of children who were so malformed as to be incapable of prolonged life, yet show much room for improvement.

ANALYSIS OF CAUSES OF INFANT MORTALITY IN SUCCESSIVE QUINQUENNIA 1896-1930,
AND THE YEAR 1930. (A).—RECORDED DEATHS.

	1	2	3	4	5	6	7	8	9
	Births and Birth Rates.	Total Deaths Under 1 Year of Age.	General Diseases (excluding Tubercu- losis).	Tubercular Diseases.	Nervous Diseases	Respira- tory Diseases	Digestive Diseases ; including Diarrhoea.	Malforma- tions, Premature Birth, Maras- mus, &c.	External Causes.
1890	111,700	21,160	1,508	698	2,476	3,575	6,376	5,698	819
1895	118,801	20,353	1,546	644	2,516	3,484	5,187	5,732	565
1900	118,313	17,739	1,613	465	2,052	3,146	3,902	5,520	539
1905	111,872	15,458	1,309	345	1,432	2,916	3,635	4,953	426
1910	99,451	11,510	1,116	202	1,083	2,821	1,872	4,107	179
1915	104,217	10,497	1,066	200	573	2,776	1,786	3,764	120
1920	95,701	9,002	978	109	401	2,553	1,670	2,981	81
1930	18,881	1,544	119	16	65	414	250	563	21

(B).—DEATHS EXPRESSED AT A RATE PER 1,000 BIRTHS.

1890	33·4	189	12·7	6·2	22·1	32·0	57·1	51·0	7·3
1895	33·4	172	13·0	5·5	21·2	29·3	43·7	48·1	4·7
1900	32·2	149	13·6	3·9	17·4	26·6	33·0	46·7	4·6
1905	29·3	137	11·6	3·1	12·8	26·1	32·5	43·1	3·8
1910	24·9	116	11·1	2·0	10·9	28·4	18·8	42·0	1·8
1915	25·1	100	10·2	1·9	5·5	26·6	17·1	36·1	1·2
1920	22·1	94	10·2	1·1	4·2	26·7	17·4	31·1	0·8
1930	21·5	82	6·3	0·8	3·4	21·9	13·2	29·8	1·1

DEATH RATES EXPRESSED AS A PERCENTAGE OF THE RATES RECORDED IN 1896-1900

1890	100	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0
1895	100	91·0	102·3	89·3	95·0	91·5	76·5	94·0	65·7
1900	93	78·6	107·1	62·9	78·6	83·1	57·8	91	63·0
1905	87	72·5	91·9	50·0	57·9	81·5	56·9	84	52·1
1910	76	61·4	87·4	32·2	49·3	88·7	32·7	82	25·5
1915	75·1	54·9	80·3	30·6	24·9	84·7	29·9	70·8	16·4
1920	66·2	49·7	80·3	17·7	18·9	83·5	30·4	60·9	11·0
1930	64·4	43·4	49·6	12·9	15·4	68·4	23·1	58·4	15·1

MATERNITY and CHILD WELFARE.

The maternity and child welfare work in this city is very comprehensive and has been carried out throughout the year 1930 with very gratifying results. The whole scheme is designed to reduce maternal and infantile mortality and morbidity, and entails not only the harmonious and co-ordinated action of all officially engaged in it, but also active co-operation of public health services with all voluntary agencies, medical and social, whose efforts are directed towards the same objective.

The maternity and child welfare scheme operative in this city is given in outline in the following pages.

THE MIDWIFERY DEPARTMENT.

In this are included :—

1. The quarterly routine visiting of midwives in their own homes for inspection of registers, records and equipment, under the Central Midwives' Board Rules.
- ii. The investigation of all cases of :—
 - (a) Medical assistance sought by midwives (Central Midwives' Board Rules).
 - (b) Puerperal Pyrexia and Puerperal Fever [under the Public Health (Notification of Puerperal Fever and Puerperal Pyrexia) Regulations, 1926.]
 - (c) Claims for fees in indigent cases (under section 14 of the Midwives Act, 1918).
 - (d) Claims from midwives suspended so as to prevent the spread of infection (Midwives and Maternity Homes Act, 1926).

- (e) Maternal deaths (for Ministry of Health Maternal Mortality Committee).
 - (f) Ophthalmia Neonatorum, and the giving of treatment where required (under Ophthalmia Neonatorum Regulations, 1926).
 - (g) Premises intended to be used as nursing homes (under Nursing Homes Registration Act, 1927).
- iii. The visiting of Lying-in Homes (registered under the Liverpool Corporation Act, 1921, and Midwives and Maternity Homes Act, 1926), also visiting of Nursing Homes (under Nursing Homes Registration Act, 1927).
 - iv. Any other enquiries, investigations or advice relative to the practice of midwives in the city.

MIDWIFERY DEPARTMENT.

As has been indicated in the above outline, the work of this department is based upon certain rules of the Central Midwives Board, and certain Acts and Regulations of the Ministry of Health.

During the year 1930, 287 midwives gave the required notice under section 10 of the Midwives Act, 1902, of their intention to practise midwifery in this city.

A total of 10,776 births were attended by these midwives during the year, and 1,595 by the midwives employed in the four District Homes belonging to the Liverpool Maternity Hospital, making the total number of births attended by the midwives of Liverpool 65·5 per cent. of the total births registered in the city. So far as can be ascertained, no birth was attended during the year by an uncertified woman.

The number of births taking place in institutions during the year was 5,064.

STATEMENT OF NOTIFICATIONS OF BIRTHS RECEIVED DURING THE YEARS 1926 TO 1930.

Notifications Received from	1926.		1927.		1928.		1929.		1930.	
	Births.	Percentage of Births Registered in the City.	Births.	Percentage of Births Registered in the City.	Births.	Percentage of Births Registered in the City.	Births.	Percentage of Births Registered in the City.	Births.	Percentage of Births Registered in the City.
Certified Midwives	12,535	63.33	11,647	61.23	11,389	59.6	10,898	57.7	10,486	55.54
Medical Attendants.....	1,749	8.83	1,690	8.88	1,723	9.0	1,743	9.23	1,759	9.32
Institutions	1,728	8.73	1,849	9.72	2,233	11.7	2,531	13.40	2,883	15.27
Ladies' (Maternity Hospital...	776	3.81	1,075	5.65	1,067	5.6	1,042	5.51	1,032	5.46
Charity (District Homes	1,471	7.43	1,453	7.64	1,479	7.7	1,476	7.88	1,551	8.21
"Rest Home," Chatham St ...	308	1.55	289	1.52	269	1.4	268	1.42	277	1.47
Royal Infirmary	144	0.71	279	1.52	291	1.58	371	2.00	457	2.42
Other Institutions	46	0.24	31	0.07	32	0.08	29	0.16	28	0.15
Parents	8	0.04	3	0.02	2	0.01	3	0.02	—	—
	18,765	94.85	18,316	96.29	18,485	96.68	18,361	97.3	18,473	97.8

Total number of births registered in the City

1926 1927 1928 1929 1930
 — — 19,792 19,120 18,881
 — — 19,020 18,888 18,881

ROUTINE VISITS TO MIDWIVES.

Rule 25 laid down by the Central Midwives Board states as follows :

“ The Local Supervising Authority shall make arrangements to
 “ secure a proper inspection of the register of cases, bag of
 “ appliances, etc., of every midwife practising in the district of
 “ such authority, and when thought necessary, an inspection of
 “ her place of residence, and an investigation of her mode of
 “ practice.”

For this purpose three fully trained health visitors have been appointed; all hold the certificate of the Central Midwives Board. During the year, 2,304 visits were paid to the homes of practising midwives for the purpose of inspection, and for special enquiries relating to their work.

The operation of the Notification of Births Act, which renders it obligatory on the part of the medical attendant or midwife, as well as the father of the child, to notify the occurrence of a birth, has been a very valuable aid to the working of the Midwives Act.

MEDICAL ASSISTANCE.

Under the rules issued by the Central Midwives Board, a midwife must advise that medical assistance shall be called in where there is any abnormal circumstance connected with the confinement.

Among the midwives' cases during the year there were 71 difficult labours where the child was stillborn, which were attended by medical practitioners called in under these rules.

The following table gives the details of the complications for which medical aid was advised by midwives, the total number of medical records being 3,206.

MOTHER—

Obstructed labour, uterine inertia or requiring instrumental assistance	...	...	...	...	...	...	...	606
Ruptured perinæum	...	...	...	...	...	...	...	563
Ante-partum hæmorrhage	...	...	...	...	...	...	...	206
Pyrexia	...	...	...	...	...	...	...	160
Ante-natal treatment	...	...	...	...	...	...	...	146
Abortion or miscarriage	...	...	...	...	...	...	...	135
Carried forward	...	...	...	...	...	...	...	1,816

					Brought forward	...	1,816
Post-partum hæmorrhage	...	...	...	...	...	...	103
Retained placenta or membranes	...	...	...	...	...	...	69
Varicose veins	...	...	...	...	...	...	51
Premature birth	...	...	...	...	...	...	14
Multiple births	...	...	...	...	...	...	13
Eclampsia	...	...	...	...	...	...	10
Deformed pelvis	...	...	...	...	...	...	8
Influenza	...	...	...	...	...	...	3
Abnormal presentation :							
Breech presentation	...	...	...	...	...	...	64
Occipito-posterior position	...	...	...	...	...	...	38
Cord presentation	...	...	...	...	...	...	17
Foot presentation	...	...	...	...	...	...	15
Brow or face presentation	...	...	...	...	...	...	13
Transverse presentation	...	...	...	...	...	...	5
Placenta prævia	...	...	...	...	...	...	4
Various	...	...	...	...	...	...	163

CHILD—

Feebleness and prematurity	...	...	...	...	...	...	259
Ophthalmia	...	...	...	...	...	...	249
Skin eruption	...	...	...	...	...	...	70
Malformation	...	...	...	...	...	...	60
Convulsions	...	...	...	...	...	...	25
Injury at birth	...	...	...	...	...	...	3
Other conditions in child	...	...	...	...	...	...	134

3,206

STILL-BIRTHS.

The number of still-births notified during 1930 was 806, of which number 334 were notified by midwives, being at the rate of 2·7 per cent. of the births attended by them.

A midwife does not give a certificate of still-birth unless she is present at the time of birth; she is instructed that if the birth should take place before her arrival she must report the matter to the Coroner, who, after enquiry, grants a certificate for the burial of the body.

Enquiries were made into the circumstances of these still-births, and the following are the figures relating to the months of pregnancy during which the still-births took place :—

Sixth month	...	...	...	...	...	7
Seventh month	...	...	...	...	...	56
Eighth month	...	...	...	...	...	85
Ninth month	...	...	...	...	...	186
						<hr/> 334 <hr/>

The number of visits paid with reference to still-births was 753.

Table shewing results of examination of still-births during the last 10 years for evidence of syphilitic infection.

Year.	Examined.	Positive.	Percentage.
1921	354	19	5·0
1922	438	30	7·0
1923	408	33	8·0
1924	398	26	6·0
1925	346	15	4·0
1926	347	13	4·0
1927	297	12	4·0
1928	269	2	0·74
1929	149	3	2·0
1930	85	—	—

PUBLIC HEALTH (NOTIFICATION OF PUERPERAL FEVER AND PUERPERAL PYREXIA) REGULATIONS, 1926.

These regulations, which came into force on October 1st, 1926, require the notification to the Medical Officer of Health of any febrile condition occurring in a woman within 21 days after childbirth or miscarriage, in which a temperature of 100·4° Fahrenheit or more has been sustained during a period of 24 hours or has recurred during that period. Puerperal fever was, and still continues to be, notifiable under the Infectious Diseases (Notification) Act, 1889, to which the above regulations are supplementary.

With the object of securing adequate treatment in the early stages of this somewhat ill-defined condition, the prescribed notification form

provides that the medical attendant can ask for (1) a second opinion on the case, (2) certain bacteriological examinations, (3) admission of the patient to hospital or (4) the provision of trained nurses; or, alternately, state that facilities for all necessary treatment exist.

The necessary facilities to meet these requisitions have been provided by the Health Committee as follows:—The services of consultant obstetricians are available when considered necessary by the medical officer. Hospital accommodation has for some years been provided, formerly in the city hospital, Fazakerley, and latterly in Walton and Smithdown Road Hospitals, and Mill Road Infirmary. Arrangements have been made by which the services of the nurses of the Queen Victoria District Nursing Association are available.

The number of cases of puerperal pyrexia notified during the year was 151. Of these 18 were found to be puerperal septicæmia, and therefore fall within the definition of puerperal fever. One was a case of influenza, two were cases of pneumonia, one of pulmonary tuberculosis, and one was an abortion. The remaining 128 were cases of pyrexia of puerperal origin of a lesser degree than is termed puerperal fever, and included three who resided outside the city. Ninety-three cases were admitted to or occurred in hospital, and 55 were attended by midwives. In seven cases a consultant obstetrician was called in, and in 22 cases nurses were provided.

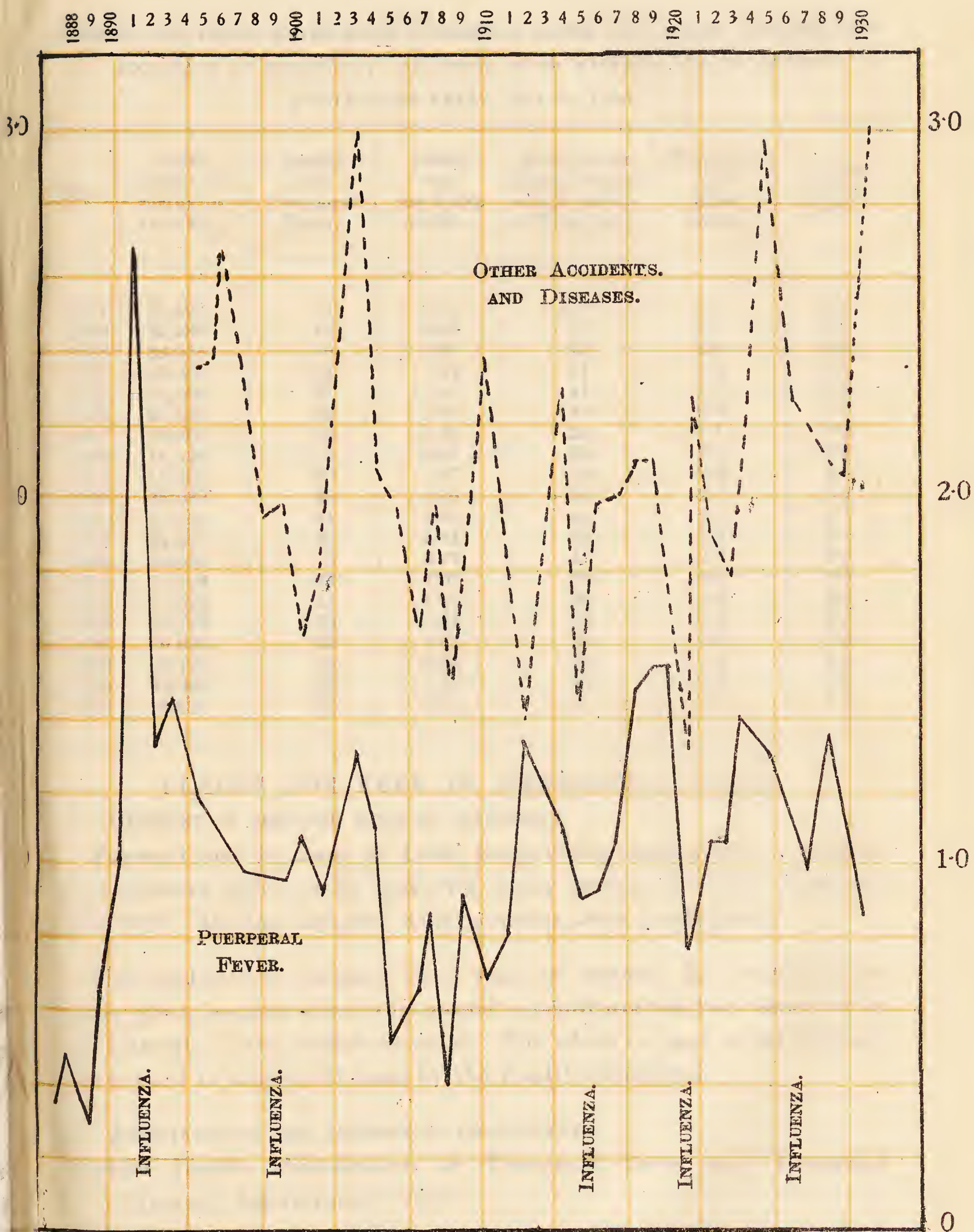
PUERPERAL FEVER.

The number of cases of puerperal fever notified to the Medical Officer of Health during the year was 43, of which 16 proved fatal. This gives a death rate of 0·85 per 1,000 live births in the city.

Thirty-six cases were admitted to or occurred in hospital, viz.:—3 Mill Road Infirmary, 26 Walton Hospital, 4 Smithdown Road Hospital, 2 Royal Infirmary, 1 Maternity Hospital. After the usual enquiries were made, 28 cases (of which 8 died) were found to have occurred in the practice of midwives.

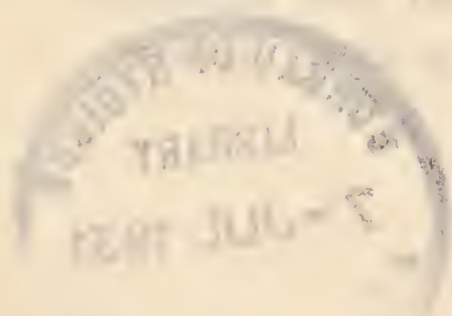
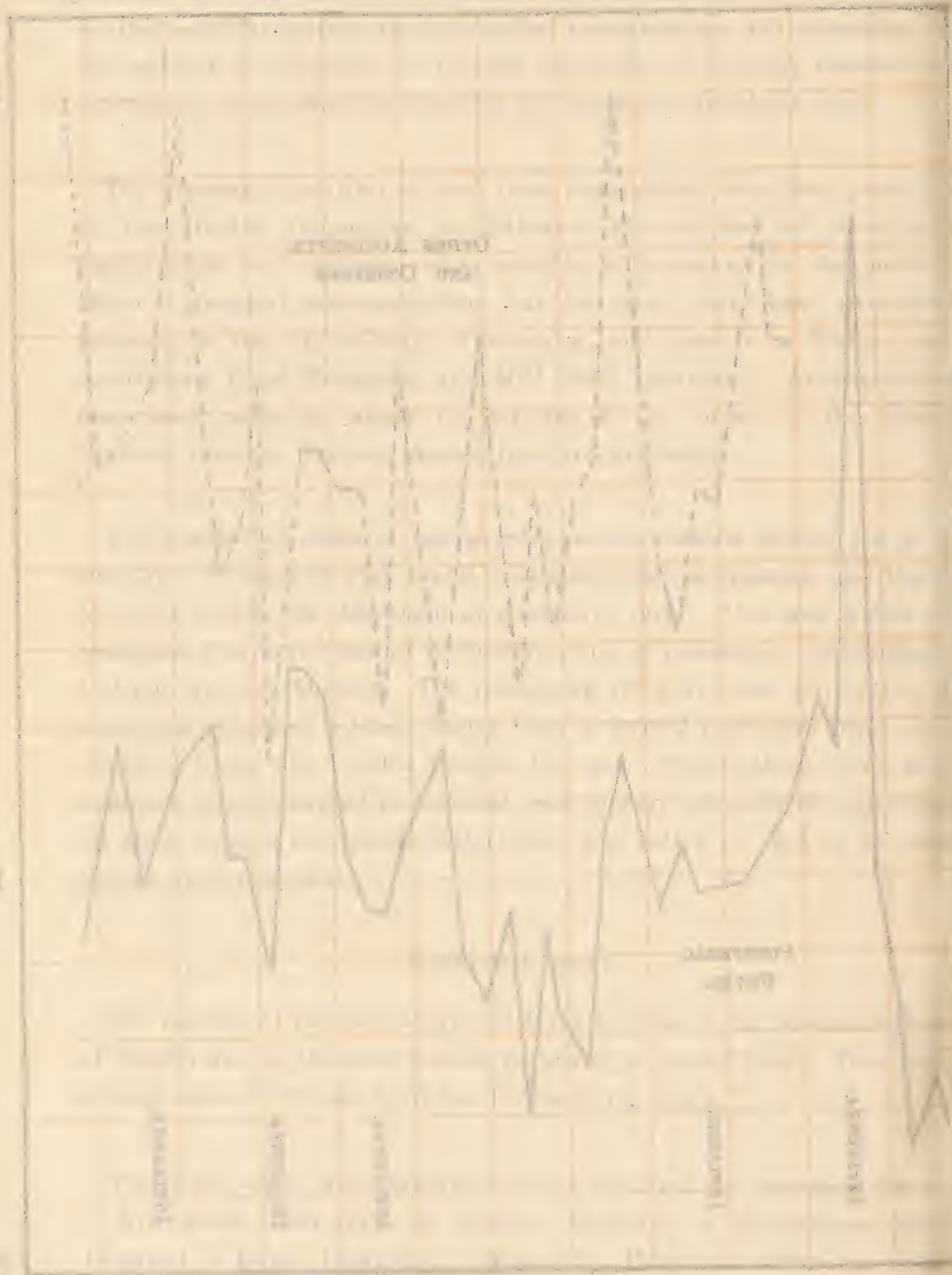
CITY OF LIVERPOOL

MORTALITY PER 1000 BIRTHS FROM PUERPERAL FEVER AND
OTHER ACCIDENTS AND DISEASES OF PREGNANCY, 1888-1930.



CITY OF LIVERPOOL

MONTHLY FOR 100 BIRDS FROM THE GREAT BRITAIN
OTHER ACCOUNTS AND REPORTS OF THE GREAT BRITAIN
BIRDS IN THE GREAT BRITAIN



DEATHS AND DEATH RATES FROM PUERPERAL FEVER AND OTHER DISEASES AND
ACCIDENTS OF PREGNANCY, TOGETHER WITH MATERNAL DEATH RATES
DURING THE YEARS 1911 TO 1930.

Year.	Total number of births in the City.	Deaths from Puerperal Fever.	Death rate per 1,000 births.	Deaths from Other Diseases and Accidents of Pregnancy.	Death Rate per 1,000 births.	Maternal Death Rate.
1911	22,493	21	0.93	47	2.1	3.0
1912	22,233	15	0.68	53	2.4	3.1
1913	22,555	18	0.80	42	1.8	2.6
1914	23,065	31	1.34	31	1.3	2.6
1915	21,586	27	1.25	41	1.9	3.2
1916	20,679	22	1.06	48	2.3	3.4
1917	17,906	16	0.90	25	1.4	2.3
1918	17,133	16	0.93	35	2.0	2.9
1919	18,694	20	1.07	38	2.0	3.1
1920	25,039	36	1.49	54	2.1	3.6
1921	21,904	34	1.55	46	2.1	3.6
1922	21,467	33	1.54	28	1.3	2.8
1923	20,695	16	0.77	47	2.3	3.0
1924	20,559	22	1.07	39	1.9	3.0
1925	19,592	21	1.07	36	1.8	2.9
1926	19,792	28	1.41	43	2.2	3.6
1927	19,020	25	1.31	58	3.0	4.3
1928	19,120	19	0.99	45	2.4	3.4
1929	18,888	26	1.37	40	2.1	3.5
1930	18,881	16	0.85	59	3.1	3.9

CLAIMS FOR FEES IN EMERGENCY CASES.

1. PAYMENT OF FEES FOR MEDICAL ASSISTANCE.

Payment may be made by Local Supervising Authorities to medical practitioners called in by midwives under section 14 of the Midwives Act, 1918. During the year 3,034 accounts were investigated.

The applicant is assessed on a scale of income, due consideration being given to cases where any special expenditure has been incurred in the interests of the mother or child. The whole or part of the doctor's fee is paid in almost all cases by the Health Committee.

2. PROVISION OF AND PAYMENT OF CONSULTANTS.

[Public Health (Notification of Puerperal Fever and Puerperal Pyrexia) Regulations, 1926.]

As stated in the section of this report dealing with Puerperal Pyrexia, the services of consultant obstetricians are available if required by a general medical practitioner.

During the year the services of a consultant was requisitioned in seven cases.

The ability of the patient to pay is investigated, but in each of these cases, the whole fee was defrayed by the Health Committee.

3. PAYMENTS TO MIDWIVES ON BEHALF OF NECESSITOUS PATIENTS.

Many women find themselves unable to meet the expense of a midwife's attendance either on account of not being eligible to receive maternity benefit or on account of special expenses necessitated at the time of confinement. In such cases the Health Committee pays a large proportion of the midwife's fee.

During 1930, 205 claims from midwives for necessitous midwifery were investigated and paid.

4. CLAIMS FROM MIDWIVES WHO WERE SUSPENDED FROM PRACTICE.

Section 2 (1) Midwives and Maternity Homes Act, 1926, gives a midwife who is suspended from practice (not herself being in default) in order to prevent the spread of infection, a right to recover reasonable compensation from the Local Authority. Six claims under this section were paid by the Health Committee during 1930 :—

Contact with a case of scarlet fever	...	...	...	5
„ „ „ diphtheria	...	...	...	1

ENQUIRIES INTO MATERNAL DEATHS.

Towards the end of 1928, a new form of enquiry was issued by the Ministry of Health Maternal Mortality Committee, on which information with regard to every maternal death is collected from doctors, hospitals, midwives and health visitors, and forwarded to the Ministry of Health.

As a result of these enquiries it was found that in addition to the 75 deaths enumerated above, 26 deaths have occurred owing to associated or concurrent diseases, such as heart disease, pneumonia or tuberculosis. It is presumed that these deaths were inevitable and would have occurred whether the mother had been pregnant or not, but whether the pregnancy or labour have added to the strain of the concurrent illness and brought it to a fatal termination sooner than might have

occurred otherwise it is impossible to determine. It is not improbable that during the period reviewed in the table, there has been an increasing accuracy in the certification and allocation of maternal deaths, so that deaths which in former years were classified under other headings are now allocated as maternal deaths.

DEATHS ASSOCIATED WITH CHILDBIRTH INVESTIGATED DURING 1930.

Causes.						Primiparæ	Multiparæ
Hæmorrhage	...	...	...	...	25	4	21
Puerperal sepsis	...	...	...	...	22	10	12
Toxæmia	...	...	...	...	15	6	9
Pneumonia	...	...	...	..	12	1	11
Cardiac disease or failure	...	...	...	...	6	1	5
Dystocia	...	...	...	...	7	5	2
Pulmonary embolism	...	...	...	...	2	1	1
Ectopic gestation	...	...	...	...	2	—	2
Puerperal mania	...	...	...	...	2	—	2
Diabetes, asthenia and mastitis	...	...	...	...	1	—	1
Acute nephritis of pregnancy...	...	...	...	...	1	1	—
Hæmorrhage of kidney due to fall	...	...	...	...	1	1	—
Mammary abscess and retained placenta	...	...	...	...	1	—	1
Appendicitis and general peritonitis	...	...	...	...	1	1	—
Secondary carcinoma of the brain	...	...	...	...	1	—	1
Puerperal pyæmia	...	...	...	...	1	—	1
Acute secondary Anæmia	...	...	...	...	1	—	1
					101	31	70

OPHTHALMIA NEONATORUM.

INFLAMMATION IN THE EYES OF THE NEWLY-BORN.

The definition adopted for the purpose of dealing with this disease is that used in the rules issued by the Central Midwives Board, governing the practice of midwives, namely (in the section relating to the child), “Inflammation of, or discharge from, the eyes, however slight.” A considerable number of the cases enumerated below are extremely mild, but it is so difficult to draw a line between “slight

inflammation ” and definite ophthalmia neonatorum that it is considered advisable to include inflammation of all degrees of severity in the term “ Ophthalmia Neonatorum.”

The following figures give some details as to the source of information and character of the cases dealt with during the year :—

The total number of cases brought to the notice of the department was 657, and they consisted of—

(1) Mild cases	...	...	...	...	...	...	497—
(2) Severe cases	...	...	...	...	...	...	113—610
(3) Not Ophthalmia Neonatorum	...	...	...	...	...	...	47
Number treated in their homes by special nurse	...	...	...	...	...	...	238
„ attended at hospital as out-patients	...	...	...	...	...	...	114
„ admitted into hospital	...	...	...	...	...	...	38
„ treated by doctors and special nurse	...	...	...	...	...	...	79
„ „ „ alone	...	...	...	...	...	...	129
„ „ and cured in hospital	...	...	...	...	...	...	10
„ „ and died in hospital	...	...	...	...	...	...	2—610

INTERVAL IN DAYS BETWEEN BIRTH AND ONSET OF DISEASE.

Days.	1	2	3	4	5	6	7	8	9	Un- known	10 days and over.	Total.
Notified Cases during 1930	45	45	83	68	43	41	32	47	40	11	155	610

Arrangements have been made with the City Bacteriologist to examine the discharge in every notified case of inflamed eyes in the newly-born. This enables a prompt verification of the disease to be determined.

No. of notifications.	Cases from which specimens were examined by City Bacteriologist and at St. Paul's Hospital.	No. of cases of positive Gonorrhoea.	Percentage to total cases examined.	Percentage to total notifications.
610	87	27	31	4.4

TABLE SHEWING INFECTION OF EYES AT ONSET.

Both eyes.	Right eye.	Left eye.	Not known.	Total.
389	86	106	29	610

The total number of visits and re-visits paid in respect of the above cases was 4,968.

A very important part of the scheme for dealing with this disease is the provision at St. Paul's Eye Hospital of five beds and cots for the reception of infants with their mothers, where the former can be under the immediate care of ophthalmic surgeons and nurses during the acute stage of the disease.

From the statistical table given on page 63 it will be seen that 38 babies were admitted with their mothers.

RESULTS.

Number of cases under treatment at 1/1/30	...	..	30
„ „ notified during year 1930	...	...	610—640
„ „ cured	...	...	604
„ „ died during treatment	...	...	9
„ „ removed to another town	...	...	2
„ „ under treatment 31/12/30	...	...	25—640

There was no case in which loss of sight occurred.

MILK DEPOTS.

The milk which is supplied from these Centres and Depots consists entirely of Grade A Tuberculin-tested milk.

The total number of persons supplied with milk during the year was 15,890, viz., 4,073 on the books at the beginning of the year, and 11,817 admitted during the year. The supply of milk is given on the presentation by the applicant of a note from a doctor, and in a few instances it was allowed on production of written requests from midwives. The following statement shows the different centres and the number supplied at each, viz.:—

Centres.	Ante-Natal.	Nursing Mothers.	Infants.		Liverpool Child Welfare Association.	Totals.
			Under 1 year of age.	1 to 2 Years of Age.		
Netherfield Road ...	215	603	634	83	400	1,935
Earle Road ...	73	220	411	36	114	854
Park Road ...	329	546	338	62	474	1,749
Boaler Street ...	57	311	467	50	144	1,029
St. Anne Street ...	247	639	357	79	446	1,768
Rathbone Road ...	50	98	323	25	36	532
Mill Street ...	80	175	95	31	92	473
Scarisbrick Road ...	128	248	358	80	256	1,070
Agents ...	83	361	248	118	1,597	2,407
	1,262	3,201	3,231	564	3,559	11,817

The total quantity of milk supplied during the year was 186,695 $\frac{3}{4}$ gallons, and the bottles prepared reached a total of 605,275. The amount of dried milk supplied was 90,819 $\frac{3}{16}$ lbs.

Total cases on books, January 1st, 1930 ... 4,073

„ „ admitted during 1930 ... 11,817

Total supplied during 1930 ... 15,890

Remaining on the books at the end of the year ... 4,731

Quarterly Average—January, February, March ... 4,430

„ „ April, May, June ... 4,677

„ „ July, August, September ... 4,307

„ „ October, November, December ... 4,664

The highest number supplied with milk at one time was 4,828 during the week ended April 4th.

Since the initiation of the scheme in 1901 down to the year 1916 the number of persons supplied with milk was 37,827, and during the last twelve years as follows:—1919, 9,832; 1920, 14,052; 1921, 10,509; 1922, 9,874; 1923, 11,411; 1924, 13,098; 1925, 11,890; 1926, 12,161; 1927, 10,270; 1928, 10,476; 1929, 11,631; 1930, 11,817; a total of 137,021.

On one day in each week mothers attend at the centre in their district for the purpose of reviewing family circumstances when the supply of milk is either :—

Continued at the price being charged.

If the circumstances are improved, then the charge is increased.

If the circumstances are worse than when last reviewed, then the charge is lowered.

The number of attendances of persons at the centres during the year for advice, and payment for milk, etc., was 21,825.

The usual grant is for a period of 4 or 6 weeks. In exceptional cases 2 or 8 weeks.

The number of visits paid during the year to children in their own homes by the health visitors attached to the centres in order to see that the children were being properly fed and cared for and the milk properly used, was 4,984. From time to time information concerning cases is received from the district health visitors and from clinics.

NURSING HOMES.

MIDWIVES AND MATERNITY HOMES ACT, 1926.

NURSING HOMES REGISTRATION ACT, 1927.

During the year four applications for registration were received by the Town Clerk. After careful investigation of the premises and practice of the applicants, two were approved by the Health Committee and registered.

Two registrations were cancelled, in one case owing to removal and in the other because the keeper of the Nursing Home desired to give up practice.

Two were re-registered under the 1927 Act.

No further exemptions other than those already granted were applied for.

The Nursing Homes on the register at the end of the year numbered 71, the approximate number of beds being 124.

Babies born in Nursing Homes during the year numbered 667 (including four cases of twin births).

VISITS OF THE STAFF OF THE MIDWIFERY DEPARTMENT TO SPECIAL CASES.

These cases are not classifiable in any of the sections so far considered and include visits to women suffering from venereal disease, visits relating to deaths of infants under 14 days old, cases of weaning, maternal mortality, etc. Such visits during 1930 numbered 457.

TABLE SHEWING CHIEF CAUSES OF DEATHS OF INFANTS DURING THE NEO-NATAL PERIOD (FIRST 28 DAYS AFTER BIRTH).

Prematurity	...	...	...	...	...	301
*Respiratory diseases	...	...	...	...	...	91
Congenital malformation	...	...	...	...	...	61
Birth injuries	...	...	...	...	...	34
Feebleness at birth	...	...	...	...	...	32
Convulsions	...	...	...	...	...	26
Gastro-enteritis	...	...	...	...	...	19
Pemphigus	...	...	...	...	...	13
†Want of attention at birth	...	...	...	...	...	13
Melaena	...	...	...	...	...	7
Congenital syphilis	...	...	...	...	...	6
Septicæmia	...	...	...	...	...	6
Icterus neonatorum	...	...	...	...	...	5
Marasmus	...	...	...	...	...	5
Accidental suffocation	...	...	...	...	...	3
Hæmorrhage	...	...	...	...	...	3
Enteritis with septic dermatitis	...	...	...	...	...	1
Myelocytic leukæmia	...	...	...	...	...	1
Osteo myelitis	...	...	...	...	...	1
Pneumococcal meningitis	...	...	...	...	...	1
Status lymphaticus	...	...	...	...	...	1
Volvulus	...	...	...	...	...	1—631†

* Include asphyxia and atelectasis.

† Include six found dead.

‡ 174 of the total number refer to deaths of infants between 14 and 28 days old. These were investigated by the Health Visitors other than those in the Midwifery Department.

It is evident that premature birth is responsible for almost half the total number of deaths of infants during the neo-natal period. In the majority of cases, it has not been possible to assign definite cause for prematurity. There appears to be no seasonal influence on the

occurrence of deaths in any of the above mentioned groups. It will be noted, however, how few cases, viz., 2·97 per cent. of the total deaths, occur at this early age from gastro-enteritis.

THE HEALTH VISITORS' DEPARTMENT.

The work is carried out by a staff of trained health visitors.

The work of the health visitors comprises the following :—

- (1) Ante-natal or pre-maternity clinics for expectant mothers.
- (2) Post-natal clinics for children up to five years of age.
- (3) Instruction classes at the above clinics in cutting out, sewing, knitting, etc.
- (4) Visiting in the homes under the Notification of Births Act.
- (5) Home-visiting in connection with the ante-natal and post-natal clinics.
- (6) Home-visiting of children up to five years of age to advise generally on their care and feeding.
- (7) Home-visiting of pre-school children in relation to defects, e.g., to arrange, in conjunction with the School Medical Department, for treatment of squint, otorrhœa, orthopædic defects, etc
- (8) School medical inspection (see page 98).
- (9) School clinics—minor ailments and special ailments.
- (10) Home-visiting in connection with school medical work.
- (11) Cleansing of school children.
- (12) Special visits :—
 - (a) Phthisis in women and children.
 - (b) Measles, whooping cough and pneumonia.
 - (c) Infantile diarrhœa.
 - (d) “ House to house ” inspection.
- (13) Other special visits in connection with :—
 - (a) Aged and infirm people.
 - (b) Prevention of cruelty to children.

- (c) Provision of fireguards.
- (d) Relieving officers.
- (e) Admissions to Day and Resident Nurseries.
- (f) Certain areas in which infantile diarrhoea is likely to occur.
- (g) Supply of milk to expectant and nursing mothers and children.
- (h) Voluntary agencies.
- (i) Other special enquiries.

1. ANTE-NATAL OR PRE-MATERNITY CLINICS.

Experience has shown that conditions productive of a high rate of mortality among mothers point also to a high rate of morbidity, which is, unfortunately, not calculable by available statistics. Among the arrangements for the care and supervision of expectant motherhood, ante-natal clinics have a large place.

In Liverpool there are 21 centres at which 35 ante-natal clinics are held weekly, whose care is the welfare of the expectant mother and her coming infant. Of these clinics, 16 are under the auspices of the Liverpool Maternity Hospital, two are held at the Royal Infirmary, one is held at Walton Hospital, one at Mill Road Infirmary, one at Smithdown Road Hospital, three are administered by the Child Welfare Association, and the remaining eleven by the Health Committee. At an ante-natal clinic, specialised examination is provided, for the most part, by consultant obstetricians.

Classes for mothers are held at the pre-maternity clinics in rotation. At these classes the mothers are advised on preparation for their confinements, hygienic maternity clothes for themselves, and suitable cot, bedding and clothing for the coming infant. The attendances at the classes have shown how much they are appreciated.

The attendances at classes held by the health visitors at ante-natal clinics amounted to 9,319.

Treatment, except of a minor or preventive character, is not given. Patients in need of treatment are referred to private doctors or, if necessary, to a suitable hospital. Milk is provided for expectant mothers on a doctor's order.

The Central Midwives Board have laid down in their rules that midwives must keep notes of the ante-natal condition of their cases in the form approved by the Board. The expert medical opinion and advice, obtainable free, at ante-natal clinics, are most helpful to midwives in this supervision of their patients.

Expectant mothers come to the clinics from many sources, as will be seen by the accompanying table which refers to the Municipal and Liverpool Maternity Hospital Clinics.

Ante-natal clinics held on hospital premises :—

New cases	...	...	...	...	...	5,640
Total attendances	...	...	...	...	...	20,426

Ante-natal clinics held on district clinic premises :—

New cases	...	...	...	...	...	6,826
Total attendances	...	...	...	...	...	31,552

All ante-natal clinics :—

Total new cases	...	...	...	...	...	12,466
Total attendances	...	...	...	...	...	51,978

It is interesting to note that about 60 per cent. of the mothers visited by the health visitors, under the Notification of Births Act, attend the ante-natal clinics.

The great majority of the cases are patients of midwives, a few are private doctors' cases who cannot afford to pay frequent routine visits to the doctor during pregnancy, and some are women who intend to go to a hospital for confinement.

The co-odination between the clinics, the doctors and the midwives is very gratifying.

Mothers who stay at home for their confinements and have no women relations or friends to assist them in their housekeeping are very grateful for the provision of a home help. Home helps are women who can take the place of the housewife in the home, and cook, clean and attend to the children. They are provided by the Women's Service Bureau, Gambier Terrace. This organisation also provides

maternity bags and sterilised accouchement sets, which are a great boon to very poor mothers and to those who unexpectedly bear twins. Midwives are encouraged to visit the homes of their patients and to investigate carefully the arrangements for confinement. Where these conditions are unsatisfactory, every effort is made to rectify them at once.

POST-NATAL SUPERVISION OF RECENTLY CONFINED MOTHERS.

Mothers are encouraged to attend the ante-natal clinics after the birth of the infant has taken place. This is for the purpose of examination to ascertain the existence of any morbid condition which might have occurred owing to the confinement. Such lesions, if left untreated, may give rise to much disability and suffering later.

2. INFANT CLINICS OR CLINICS FOR CHILDREN UP TO FIVE YEARS OF AGE.

Infant clinics have a three-fold aim. First, to instruct mothers in the care and feeding of infants and young children; second, to supervise the progress of the young child and to prevent, as far as possible, unnecessary illness due to ignorance of mothers; and third, to assist in restoring the mother to health and in establishing natural feeding. Talks are given to mothers on hygiene and classes are held in which instruction in knitting, cutting out and making children's clothes is given.

Attendances at Municipal Infant Clinic classes numbered 6,520 during the year.

It will be noted that these clinics do not in any sense take the place of a hospital, dispensary or private doctor's consultation. Accessory foods, such as cod liver oil, emulsion, and so forth, are given on a doctor's order at cost price. In the case of infants whose mothers are unable to breast-feed them, Grade A (T.T.) milk, if necessary modified to prescription, or dried milk may be ordered by the clinic doctors. (A fuller account of this subject comes under the section dealing with milk depots.)

The sources of admission to the infant clinics are similar to those of the pre-maternity clinics, but mothers having once attended an "infant clinic" frequently attend as a matter of course with each succeeding

child, so that the number of mothers coming under this category shews a marked increase each year.

The value of the mother's attendance at a clinic is increased by visits to her home which are paid by the health visitor, who has either registered, weighed or taken notes of the doctor's advice for her baby at the clinic.

Children who have been seen by the doctor at a clinic are visited in order to ascertain if the doctor's instructions are understood and are being properly carried out.

INFANT CLINICS.

The following figures give the condition and feeding of children on admission to those infant clinics which are under the control of the Health Committee:—

Admissions for year	7,971
---------------------	-----	-----	-----	-----	-----	-------

Condition of health on admission:—

Good	...	...	...	...	...	5,286
Fair (under average)	...	...	...	...	...	1,784
Delicate	...	...	...	...	...	901—7,971

Method of feeding on admission:—

Breast-fed entirely	...	...	...	...	4,917
Partly breast-fed...	...	...	...	...	665
Artificially fed entirely	2,389—7,971

Total attendances for the year at all centres	...	105,385
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This shews an increase of 8,408 over last year.

There are 12 centres at which 28 sessions are held per week.

3. THE HEALTH VISITORS' WORK CARRIED OUT IN THE HOMES.

Visiting in the homes under the Notification of Births Act has been carried out since 1907 in Liverpool. This establishes contact with the mother and child as soon as the puerperium is over and follows on the attendance of the doctor or midwife or on the patient's discharge from hospital. At this time, advice is given and the mother (or child) referred to her own doctor or to an infant clinic.

Visits in this connection are continued, periodically, whether the child attends a clinic or not. Notes are made on the general progress and children are referred for appropriate treatment for defects, when required.

Home visiting is a necessary adjunct to the ante-natal and post-natal clinics. Frequently the directions and advice given in the clinic are not clearly understood by the mother and require further explanation. This is best given informally in the home. The home conditions are sometimes found to be inimical to the welfare of the child or even of the whole family, and it is only by a careful investigation of the circumstances that suitable corrections can be made.

It is noted elsewhere in this report that infantile diarrhœa is much less prevalent now than in former years. To a large extent this is due to the careful visiting of homes and areas likely to be affected in the early part of the year, so that householders may be warned of the danger of flies and advised as to methods for their destruction.

All notified cases of measles, whooping cough and pneumonia nursed at home are also visited by members of the health visiting staff. Appropriate assistance is given, either in the actual nursing of the child or in arranging for its efficient isolation from other members of the family.

The health visitors' duties in connection with the School Medical Department are very extensive and include attendances at the schools during the routine school medical examinations, concentration visits to schools, attendance at all school clinics and clinics for the treatment of special defects, e.g., defective vision, aural troubles, enlarged tonsils and adenoids, ringworm.

By arrangement with the School Medical Department, pre-school children—that is those under the age of school attendance—suffering from defects of eyes or ears may receive treatment and advice at the School Medical Department's special clinics. During 1930, 192 children under five years of age were referred for special treatment to this department.

Defective vision ...	...	...	...	...	143
Otorrhœa ...	...	...	...	...	24
Orthopædic defects ...	...	...	...	...	103

Home visits were paid in each case, and all the children were found to be unable to obtain the necessary treatment from private practitioners on account of poverty, or from hospital out-patient departments on account of the already long waiting lists, necessitating loss of time and consequent risk of irremediable defects. (Further details of the work of the health visitors are given in the report of the School Medical Officer, which is separately printed.)

STATISTICS RELATING TO HOME VISITS.

Visits to expectant mothers in 1930 by health visitors ... 1,240

VISITING UNDER THE NOTIFICATION OF BIRTHS ACTS, 1907 AND 1913.

Number of births visited during the year ...	...	...	18,308
Re-visits to births during the year ...	...	...	56,668
Re-visits to infants of 1 year to 5 years of age ...	...	...	52,509

VISITS TO CASES OF INFECTIOUS DISEASE, &C.

Visits to cases of measles ...	...	...	9,839
„ „ whooping cough ...	...	...	554
„ „ pneumonia ...	...	...	1,380
„ „ influenza ...	...	...	4
„ „ infantile diarrhœa ...	...	...	1,643
Re-visits to phthisis cases amongst women and children ...	...	...	6,142
Number of visits paid to schools ...	...	...	8,743
„ hours spent in schools ...	...	...	15,655
„ children inspected in schools ...	...	...	50,867
„ children re-inspected in schools ...	...	...	135,661
„ dental inspections in schools ...	...	...	52,839
„ home visits to cases of physical defects ...	...	...	9,368
„ home visits to neglected and verminous school children ...	...	...	19,127
„ home visits to school children suffering from infectious skin diseases, etc. ...	...	...	1,060

Attendance at Minor Ailments Clinics, and Eye, Ear, Tonsils and Adenoids, Dental and Ringworm Clinics :—

Number of visits to school clinics ...	...	...	7,901
„ hours spent at school clinics ...	...	...	30,049
„ attendances at school clinics ...	...	...	293,713

CARNEGIE WELFARE CENTRE.

The Carnegie Welfare Centre has now completed seven years as a most useful and educational welfare centre in the city.

During 1930, the work of former years has been carried on, but with an increased number of attendances in all departments.

Infant clinics are held on four afternoons per week. An ante-natal clinic is held on one afternoon per week. The attendances at the clinics have shewn an increase each year on those of the year preceding. The classes for knitting, sewing, etc., have also been well attended.

CARNEGIE CENTRE OBSERVATION WARDS.

The number of infants admitted since the opening of the wards is as follows :—

1924	...	...	...	...	...	...	69
1925	...	...	...	...	...	...	116
1926	...	...	...	...	...	...	98
1927	...	...	...	...	...	...	109
1928	...	...	...	...	...	...	106
1929	...	...	...	...	...	...	119
1930	...	...	...	...	...	...	118

The reasons for admissions during 1930 were :—

1. Failure to make normal progress 21
 20 much improved.
 1 taken home with whooping cough.
2. Infantile Dyspepsia 24
 15 cured.
 2 made poor progress.
 2 transferred to hospital.
 2 taken home for private medical attention.
 3 died.
3. Rickets 43
 41 much improved.
 2 taken home for private medical attention.
 (4 required surgical treatment.)

4. Observation... .. 7

e.g. Weaning, breast feeding under observation, no diagnosis, etc.

3 sent home well.

1 Tubercular-Peritonitis—transferred to hospital.

1 Meningitis—transferred to hospital.

1 Enteritis—transferred to Hospital.

1 mentally defective—Mental Home recommended.

5. The remainder of the cases admitted were intended for the Resident Nursery, but as the Nursery was fully commissioned they were accommodated in the Carnegie Welfare Centre.

Entirely satisfactory results were achieved in 81 per cent. of the cases admitted.

The average duration of stay in the wards has been 36 days, but the actual time has varied from a few days to several months.

ULTRA-VIOLET IRRADIATION CLINIC.

CARNEGIE WELFARE CENTRE.

Three sessions are held each week. During the summer months which were rather more than usually fine, the numbers attending were reduced, but on the onset of the colder weather, numbers rapidly increased.

Only those rachitic children definitely non-surgical are treated. Those admitted to the wards give better results on the whole than those attending as out-patients (no inference of any value can be drawn from this fact, as cases are taken as they are sent from the clinics, and no control observations can conveniently be made).

Actual figures, however, show the following:—In-patients: 80 per cent. good results; 10 per cent. fairly good results; 10 per cent. no response to treatment. Out-patients: 52 per cent. good results; 48 per cent. poor results.

The children who are classed under the heading of "Lack of normal progress" are those in whom no very definite cause for their failure to gain weight normally is apparent. Occasionally the condition is dated from some previous illness or even from weaning. It is frequently due to poverty, mismanagement or neglect, or overcrowding with resultant conditions of defective hygiene. Occasionally

some latent infection is responsible, and more often than not a combination of adverse conditions is found. These cases, as one would expect, give better results when admitted than when attending as out-patients. As out-patients, they are frequently faced with the alternative of turning out, probably insufficiently protected, in inclement weather, or of attending irregularly for treatment. This, naturally, impedes their chances of benefiting as they otherwise might.

CARNEGIE ULTRA-VIOLET IRRADIATION CLINIC.

New cases during 1930	...	...	...	...	...	199
Attendances	...	...	...	...	...	3,466
Total attendances since opening in May, 1928	...	...	...	...	...	8,001

CHILDREN.

RICKETS	...	...	...	...	...	...	108
In-patients	...	...	...	...	22		
Good results	...	...	...	...	...	...	22
Out-patients	...	...	...	86			
Good results on completion of treatment	...	...	...	...	...	25	
Fairly good	„	„	„	...	...	5	
Poor response—treatment discontinued	...	...	...	...	...	4	
Attended irregularly	...	...	...	...	...	29	
Still under treatment at end of year	...	...	...	...	...	23	
FAILURE TO MAKE NORMAL PROGRESS	...	...	...	...	...	47	
In-patients	...	...	...	...	16		
Good results	...	...	...	...	...	...	16
Out-patients	...	...	...	31			
Good results on completion of treatment	...	...	...	...	...	6	
Fairly good	„	„	„	...	...	2	
Poor response—treatment discontinued	...	...	...	...	...	2	
Attended irregularly	...	...	...	...	...	12	
Still under treatment at end of year	...	...	...	...	...	9	
DEBILITY	...	...	...	...	...	...	21
In-patients	...	...	...	...	4		
Good results	...	...	...	...	...	...	4

Out-patients	...	...	...	17			
Good results on completion of treatment	...	...			4		
Fairly good	„	„	...	...	1		
Poor response—treatment discontinued	...	...			1		
Attended irregularly	...	...	...	...	4		
Still under treatment at end of year	...	...			7		
OTHER CASES	...	...	...	...	...	...	19
In-patients	...	...	...	4			
Good results	...	...	...	...	4		
Out-patients	...	...	...	15			
Good results on completion of treatment	...	...			7		
Attended irregularly	...	...	...	...	4		
Still under treatment at end of year	...	...			4		
			<u>MOTHERS</u>	...	...	...	4
Pregnancy	...	...	...	...	...	...	2
Epilepsy	...	...	...	...	...	...	1
Deficient lactation	...	...	...	...	...	...	1
Good results	...	...		4			

Three Dental Clinics are held weekly for expectant mothers, nursing mothers and children up to five years of age. Two of these clinics are Municipal and one is voluntary.

Municipal clinics :—

New cases	...	...	...	...	...	...	810
Ante-natal mothers	...	...	...	...	...	...	256
Post-natal mothers	...	...	...	...	...	...	463
Children	...	...	...	...	...	...	91
Number of extractions	...	...	...	...	...	...	2,476
„ fillings	...	...	...	...	...	...	41
„ scalings	...	...	...	...	...	...	34
„ denture cases	...	...	...	...	...	...	26

Voluntary clinic (Child Welfare Association) :—

New cases	...	...	...	...	...	...	210
Total attendances	...	...	...	...	...	...	686

All clinics :—

New cases	...	...	...	...	...	1,020
Total attendances	...	...	...	...	...	2,201

INOCULATION CLINIC.

At the end of October, 1930, a clinic was opened at the Carnegie Welfare Centre for the inoculation of children against diphtheria and scarlet fever. The clinic is held once weekly.

Testing of older children for susceptibility to these diseases is also carried out at this clinic.

Immunised against diphtheria and scarlet fever	...	68
Immunised against diphtheria alone	... ..	48

Inoculation has also been arranged for those children in the several day nurseries whose parents desire it. Of these, one hundred and thirty-six children were immunised, October-December, 1930.

MATERNITY AND REST HOME.

"Quarry Bank," 162, Hawthorne Road.

The accommodation of the home consists of two wards, together with an emergency ward and an isolation ward, containing 18 beds in all. It is intended to provide accommodation for women whose physical condition or home circumstances make it very desirable that they should have rest and care before, during, or after their confinements. It has proved to be of immense benefit in this way, and has been very much appreciated by those who have been received into the home.

The statistics relating to the treatment of patients in the home during the year 1930 are as follows :—

Total number of cases admitted ...	...	...	...	165
Number of women confined in the home...	...	...	...	150
„ pre-maternity cases ...	...	...	...	14
„ post-natal case (with infant)	...	..	..	1

The average duration of stay was 18·2 days.

Of the 150 cases of labour conducted in the home, the patients in all cases made a good recovery, and no maternal mortality occurred. The normal cases numbered 126, and the cases of complicated labour were 24. Three patients were transferred to hospital for caesarean section. Of the total number of cases 103 were primigravidae. Former patients admitted for a second confinement at the home numbered 17, and for a third time 4.

Of the 151 babies born in the home, 149 were born alive and two were still-born. In the case of the still births the cause of death was stated to be: 1 macerated foetus, 1 transverse (doctor's case).

Of the 149 babies born alive 2 died within 10 days of birth. The cause of death was stated to be: 1 congenital malformation of oesophagus, 1 twin-prematurity.

The 14 pre-maternity cases were admitted on account of various complications associated with pregnancy, such as albuminuria, bacilluria, heart disease, varicose veins, hydramnios and contracted pelvis.

No case of puerperal sepsis and no case of ophthalmia neonatorum occurred in the home during the year.

A pre-maternity clinic is held at the home once per week, when the medical officer attends to see patients.

During the year 149 patients attended for the first time, and the total number of attendances was 755, the average attendance per week was 14·8.

DAY NURSERIES.

The Day Nurseries in Liverpool are seven in number, six of which are under the control of the Health Committee. Children from the age of one month to five years are admitted, and may remain from 7 a.m. to 7 p.m. on week-days and 7 a.m. to 1 p.m. on Saturdays.

A daily or weekly charge is made for each child, which is based on an income and expenditure figure. Only the children of mothers who are obliged to work by reason of widowhood, unemployment or incapacity of their husbands are admitted. The particulars given to the matron on admission of each child are investigated by a call made at the home by the health visitor for the district in which it is situated.

The Nurseries provide a training school for nursery nurses and an excellent preliminary training for girls wishing, subsequently, to become hospital nurses.

At one of the nurseries, children may be boarded for short periods to tide over special difficulties in the homes, usually confinement or illness of the mother, as indicated in a subsequent table.

In January, 1929, a kindergarten mistress was appointed to organise and supervise kindergarten work in the nurseries. Each nursery is visited in turn for one week, the nursery staff conducting the classes daily in the interval. Great interest has been shewn by the children in this work, which includes threading coloured beads, building with blocks, modelling with plasticine, colour naming and sorting, drawing with coloured crayons and the making of mats and rings with coloured raffia. The aims of kindergarten work are to aid the children in their natural desire to be busy, to convert their impulses into constructive and useful channels and to encourage sympathy and a love of nature. The growing of bulbs, caring for flowers, birds and domestic pets, marching, singing, musical interpretation and rhymes are included in the daily routine.

This side of the nursery work is a great success, and adds greatly to the pleasure of the children.

The one voluntary nursery is administered on similar lines to those under the control of the Health Committee.

STATISTICS RELATING TO CORPORATION NURSERIES.
NEW ADMISSIONS.

Age.	West-minster Road.	* Edge Lane.	Shaw Street.	Smith-down Lane.	Gt. George Square.	Garston.
Under 1 year ...	21	29	27	20	25	15
1 year-2 years ...	29	60	17	8	23	17
Over 2 years ...	20	102	13	16	19	7
TOTAL ...	70	191	57	44	67	39
Total attendances ...	11,396	12,142	9,642	10,518	7,907	8,285
CONDITION ON ADMISSION.						
Good ...	30	112	14	10	37	17
Fairly good ...	17	50	23	19	19	10
Poor ...	23	29	20	25	11	12
NO. OF CASES OF ILLNESS CONTRACTED DURING THE YEAR.						
Infectious ...	—	40	19	17	13	10
Other illness ...	3	8	7	8	5	4
TOTAL ...	3	48	26	25	18	14

* Day and Resident.

ADMISSIONS TO RESIDENT NURSERY.

Number admitted during 1930	...	...	...	148
Average duration of residence	...	...	...	33·2 days.

Reasons for admission :—

Mothers' confinement	...	...	...	...	76
Mothers in hospital	...	...	...	...	37
Mothers in sanatorium	...	...	...	...	3
Mothers in mental hospital	...	...	...	...	2
Mother ill at home	...	...	...	...	1
Mothers in convalescent homes	...	...	...	...	22
Mothers on holiday (four Tired Mothers' Holiday).	...	...	...	...	6
Mother dead	...	...	...	...	1

INFECTIOUS DISEASES IN SCHOOLS.

The usual infectious diseases were slightly less prevalent during the year, 8,921 cases of children of school age being reported as against 10,832, 8,750, 9,876 and 10,128 for the years 1926 to 1929 respectively. There was a very considerable decrease in the number of cases of measles compared with that of the previous year.

Diphtheria continued prevalent during 1930, and in the autumn a severe type became widespread, double the number of school cases of the disease occurring in 1930 compared with 1929. The number of cases increased very rapidly during the first fortnight of September, several schools in West Derby being mainly affected. Numerous visits to schools were paid, and swabs were taken for the detection of carriers from 796 children. Of these 49, or 6·2 per cent., were positive.

Scarlet Fever was also very prevalent in the spring months, but the prevalence was not so high in the autumn as in the previous year.

Altogether 101 visits to schools were made by the Assistant Medical Officer of Health during 1930, on account of the presence of infectious diseases.

Whooping cough, chickenpox and mumps were less prevalent than in 1929. There were two cases of encephalitis lethargica amongst children between the ages of 5 and 15.

Special action had to be taken on account of infectious diseases during the year as follows:—Infants' Departments were wholly or partially closed in 25 cases for measles, in two cases for diphtheria, in two cases for diphtheria and measles, and in two for measles and another disease. One Infants' department was closed on account of whooping cough.

On several occasions the exclusion of all children who had not previously suffered from the disease was found practicable. This procedure is not always feasible, as it would in most instances reduce the attendance below that which would render it worth while to keep the school open. In the case of outbreaks of two diseases this method is not likely to be so successful. The recent alteration of the rules of the Board of Education has, however, permitted more flexibility in the methods which can be taken to suppress epidemic diseases.

The following tables shew the number of cases of the common infectious diseases, with the ages of the children affected, and the monthly distribution of the cases:—

SCHOOL CASES.

AGE DISTRIBUTION.

Disease.	under 5	under 6	under 7	Total under 7	under 8	under 9	under 10	under 11	under 12	under 13	under 14	Over 14	Total 7 and over	Grand total.
Diphtheria ...	32	285	360	677	300	241	246	215	138	125	100	27	1,392	2,069
Scarlet fever ...	34	248	280	562	236	184	149	127	88	70	82	42	978	1,540
Measles ...	109	1,340	820	2,289	245	98	46	27	20	12	13	7	468	2,737
Whooping cough ...	10	301	190	501	62	26	19	5	5	1	2	2	122	623
Chicken pox ...	26	421	478	925	299	171	96	50	27	17	13	12	685	1,610
Mumps ...	5	96	109	210	52	23	21	11	12	4	8	1	132	342
	216	2,691	2,237	5,144	1,194	743	577	435	290	229	218	91	3,777	8,921

SCHOOL CASES.

MONTHLY DISTRIBUTION.

Disease.	Jan.	Feb.	March.	April.	May.	June.	July.	August	Sept.	Oct.	Nov.	Dec.	Totals.
Diphtheria ...	181	181	153	154	169	166	116	117	236	206	186	204	2,069
Scarlet fever ...	230	161	144	119	135	125	100	81	130	103	109	94	1,540
Measles ...	45	87	109	78	116	164	80	48	208	347	621	834	2,737
Whooping cough ...	115	96	76	40	85	68	3	25	32	17	35	31	623
Chicken pox ...	258	116	243	186	235	224	24	34	50	95	82	63	1,610
Mumps ...	13	23	47	21	25	81	1	6	5	39	54	27	342
Totals	851	664	772	598	765	828	324	311	661	807	1,087	1,253	8,921

PUBLIC ELEMENTARY SCHOOLS.

				<u>1930.</u>
Number of visits to schools	...	...	...	3,203
,, found incorrect	...	...	...	7
,, of notices issued <i>re</i> defects	...	...	...	7

NOTICES TO SCHOOL TEACHERS.

The arrangements made with the Education Committee have been continued, viz., that notice shall be sent to the Education Department and postcards to the head teachers of the various schools, giving information as to children from infected houses attending at the schools; 8,917 of these cards were sent during the year, as against 9,446 in the preceding year.

CO-OPERATION WITH EDUCATION DEPARTMENT.

References from Education Department	...	5,282
References to Education Department	...	21,015
School cases investigated or followed up	...	9,368

TUBERCULOSIS.

NOTIFICATION.

Public Health (Tuberculosis) Regulations, 1912, and Regulations
(No. 2), 1918.

Summary of Notifications during the period from 29th December,
1929, to 27th December, 1930 :—

Age-periods.	Notifications on Form A.												Total Notifica- tions on Form A.
	Number of Primary Notifications.												
	0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and up- wards.	Total Primary Notifica- tions.	
Pulmonary—													
Males	4	47	146	119	110	116	221	241	215	113	48	1,380	1,712
Females	3	44	125	80	130	128	218	150	110	61	29	1,078	1,353
Non-Pulmonary—													
Males	10	81	87	55	40	19	25	16	9	5	3	350	415
Females	7	80	77	37	41	30	43	19	7	5	1	347	421

Age-periods.	Notifications on Form B.					Number of Notifications on Form C.	
	Number of Primary Notifications.				Total Notifica- tions on Form B.	Poor Law Institutions.	Sanatoria.
	Under 5	5 to 10	10 to 15	Total Primary Notifica- tions			
Pulmonary—							
Males	—	2	1	3	3	63	163
Females	—	2	1	3	3	32	99
Non-Pulmonary—							
Males	—	6	7	13	13	5	82
Females	—	1	2	3	6	2	59

Form “A” is used by a Medical Practitioner on first becoming aware that a patient is suffering from tuberculosis, unless he has reasonable grounds for believing that the case has already been notified.

Form “B” is used by School Medical Officers to make a weekly return to the Medical Officer of Health of all cases of tuberculosis coming under their notice in carrying out the duties of medical inspection of children in Public Elementary Schools.

Form “C” is for the use of the Medical Officers of Poor Law Institutions and Sanatoria to make a weekly return of cases admitted to their Institutions, and applies only to cases which have been previously notified on Form “A.”

All patients notified by medical practitioners are given an opportunity of attending for examination at one of the Tuberculosis Institutes unless it is stated on the notification form that no action of this description is desired. It is exceptional to find that medical practitioners do not wish their patients to be examined by a Tuberculosis Officer or that the patients themselves refuse to seek his advice.

THE NOTIFICATION REGISTER.

The number of cases on the Notification Register at the end of the year was 8,670. This figure is greater than the number of patients suffering from tuberculosis who are under the supervision of the Tuberculosis Officers and whose names are therefore on the Dispensary Register, because a few notified persons do not wish to accept public medical treatment. Moreover, a number of patients under public medical treatment terminate treatment before they can be written off the notification register as cured cases.

The number of cases on the notification register and the number of patients on the dispensary register are given below in Table I.

TABLE I

	Pulmonary Tuberculosis.		Non-Pulmonary Tuberculosis.		Totals.
	Males.	Females.	Males.	Females.	
Number of cases on the Notification Register ...	3,597	2,721	1,186	1,166	8,670
Number of patients on the Dispensary Register ...	2,819	2,107	916	925	6,767
Difference	778	614	270	241	1,903

In Table II is given an analysis of the 1,903 persons whose names are on the notification register but are not on the dispensary register, according to the latest information concerning them.

TABLE II

	Pulmonary Tuberculosis.						Non-Pulmonary Tuberculosis.						Totals.
	Males.			Females.			Males.			Females.			
	State of the Disease.						State of the Disease.						
Whereabouts	Arrested.	Quiescent.	Active.	Arrested.	Quiescent.	Active.	Arrested.	Quiescent.	Active.	Arrested.	Quiescent.	Active.	
Known	41	107	525	56	120	341	36	43	169	34	36	141	1,649
Not known ...	12	30	63	17	40	40	4	5	13	10	5	15	254
Totals	53	137	588	73	160	381	40	48	182	44	41	156	1,903

TUBERCULOSIS INSTITUTES AND DISPENSARY SYSTEM.

The Tuberculosis Institutes are three in number, and are situated within the Northern, Central and Southern areas of the city. In these branches there are engaged four Tuberculosis Officers and nine whole-time nurses.

A statistical summary of the work of the Institutes in relation to diagnosis is given in table III. It is noteworthy that a definite diagnosis was made in each of 3,347 new patients (exclusive of contacts), of whom 1,711 were considered to be suffering from a disability which was not tuberculous in nature, and treatment at the public expense was not granted.

TABLE III.

Number of Patients	Under observa- tion pending diagnosis on Jan. 1st.	Applying for the first time during the year.	TOTAL.	Found to be			Under observa- tion pending diagnosis on Dec. 31st	Ceased attendance before completion of diagnosis
				Suffering from Tuberculosis.		Not suffering from Tuber- culosis.		
				Pul- monary	Non-pul- monary			
New cases examined during the year (exclud- ing "Contacts")—								
Adults—Male	24	1,193	1,217	581	61	483	10	58
Female	21	1,099	1,120	450	87	487	24	51
*Children—Male	15	662	677	93	151	379	17	22
Female	9	600	609	82	131	362	10	15
"Contacts" examined during the year—								
Adults—Male	—	46	46	4	—	42	—	—
Female	—	126	126	2	2	121	—	1
*Children—Male	—	287	287	6	3	276	—	2
Female	—	317	317	5	—	312	—	—
TOTALS	69	4,330	4,399	1,223	435	2,462	61	149
Insured Persons (included above)—								
Males ...	21	952	973	445	41	414	10	42
Females	7	462	469	190	40	206	9	17

* Under 15 years of age.

TABLE IV.—PULMONARY.
THE CONDITION OF PATIENTS WHOSE CASE RECORDS ARE IN THE POSSESSION OF THE TUBERCULOSIS INSTITUTES.

Condition at the time of the last record made during the year 1930.			Cases arising prior to 1922.				Cases arising in 1922.				Cases arising in 1923.				Cases arising in 1924.				Cases arising in 1925.				Cases arising in 1926.				Cases arising in 1927.				Cases arising in 1928.				Cases arising in 1929.				Cases arising in 1930.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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ALIVE	DISCHARGED AS CURED.	Adults	M	137	20	1	...	21	14	12	5	1	1	2	1	1

* Deaths occurring on and after January 1st, 1922, only.

TABLE V.—NON-PULMONARY.
THE CONDITION OF PATIENTS WHOSE CASE RECORDS ARE IN THE POSSESSION OF THE TUBERCULOSIS INSTITUTES.

Condition at the time of the last record made during the year 1930.				Cases arising prior to 1922.					Cases arising in 1922.					Cases arising in 1923.					Cases arising in 1924.					Cases arising in 1925.					Cases arising in 1926.					Cases arising in 1927.					Cases arising in 1928.					Cases arising in 1929.					Cases arising in 1930.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
				Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL	Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL	Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL	Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL	Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL	Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL	Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL	Bones and Joints	Abdominal	Other Organs	Peripheral Glands	TOTAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
ALIVE.	DISCHARGED AS CURED.	Adults	M	6	...	2	2	10	4	3	7	5	2	2	1	10	1	...	2	...	3	2	1	...	2	5	1	1

* Deaths occurring on and after January 1st, 1922, only

DIAGNOSIS.

The chief aids to diagnosis in doubtful cases were:—

- (a) examination by X-ray;
- (b) continued observation while following an ordinary occupation;
- (c) the repeated examination of the sputum;
- (d) a period of observation in hospital, if necessary.

Use has been made of examination by X-ray in cases in which there were diagnostic difficulties. During the year 515 cases were so examined, with the result that in 126 cases the evidence was in favour of a tuberculous infection, in 275 cases was against the presence of this disease, and in 114 cases the X-ray evidence was very inconclusive. The result of the X-ray examination in conjunction with clinical evidence has enabled the Tuberculosis Officers to overcome diagnostic difficulties in the great majority of the cases which, at first sight, appeared to be doubtful.

The X-ray apparatus used for this purpose is situated at the Fazakerley Sanatorium.

THE CONDITION OF PATIENTS KNOWN TO THE
TUBERCULOSIS OFFICERS.

A statistical return showing in summary form the condition of all patients whose case records are in the possession of the Tuberculosis Institutes at the end of the year, arranged according to the years in which the patients first came under public medical treatment, and according to their classification, is given in the two tables, Table IV, relating to pulmonary cases and Table V to non-pulmonary cases.

It is noteworthy that of 1,223 new pulmonary cases whose names were entered on the dispensary register during the year, 580 (47 per cent.) were in a very advanced stage of disease. By the end of the year, 288 (23 per cent.) of the new cases arising during that year were deceased. There is but little hope of recovery for patients who come under treatment at so late a stage of their illness.

A statistical summary of the work of the Tuberculosis Institutes so far as all cases on the dispensary registers are concerned, is given in Table VI, and at the foot thereof are included a few statistics of a general nature.

TABLE VI.

PATIENTS UNDER THE SUPERVISION OF THE TUBERCULOSIS OFFICERS

Cases on the dispensary register at the beginning of the year	7,042	Cases written off the dispensary register as cured	263
New cases examined during the year	4,269	New cases presenting no evidence of tuberculosis ...	2,384
Cases transferred from other areas and "lost sight of" cases returned	277	Cases transferred to other areas and cases "lost sight of" ...	1,198
		Deceased during the year ...	915
		Cases on the dispensary register at the end of the year ...	6,828
Total ...	11,588	Total ...	11,588

1. Number of attendances of patients (including contacts) at the dispensaries	Insured Non-insured	6,627 11,509	6. Number of patients under domiciliary treatment on December 31st } Insured Non-insured	1,000 8
2. Number of cases in which the period of observation for the purpose of diagnosis exceeded two months ...		17	7. Number of domiciliary reports received during the year in respect of patients under treatment at home. (a) Insured persons (b) Non-insured persons	4,600 4,000
3. Number of consultations with medical practitioners:— (a) At the homes of patients (b) Otherwise		656 4,437	8. Number of (a) Specimens of sputum, etc., examined (b) X-Ray Examinations made in connection with dispensary work	3,800 500
4. Number of other visits paid by Tuberculosis Officers to the homes of patients		514	9. Number of reports rendered to the School Medical Department ...	3,700
5. Number of visits paid by nurses or health visitors to the homes of patients for dispensary purposes ...		36,581	10. Number of reports rendered to the Ministry of Pensions	100

In Table VII is given a statistical analysis of the patients under dispensary treatment at the end of the year.

TABLE VII.

PATIENTS UNDER DISPENSARY TREATMENT AT THE END OF THE YEAR.

		Pulmonary.	Non-pulmonary.	Totals.	
INSURED PERSONS	Males	1	2	3	} 6
	Females	2	1	3	
NON-INSURED PERSONS	Male Adults	13	7	20	} 138
	Female Adults	20	3	23	
	Male Children*	31	17	48	
	Female Children*	30	17	47	
TOTALS ...	... ..	97	47	144	

* Under 15 years of age.

In Table VIII is given a statistical summary of the patients who, not needing active treatment, were under dispensary supervision at the end of the year.

TABLE VIII.

PATIENTS NOT NEEDING TREATMENT WHO WERE UNDER DISPENSARY SUPERVISION AT THE END OF THE YEAR.

		Pulmonary.	Non-pulmonary.	Totals.	
INSURED PERSONS	Males	787	116	903	} 1273
	Females	277	93	370	
NON-INSURED PERSONS	Male Adults	214	93	307	} 2556
	Female Adults	433	188	621	
	Male Children*	407	461	868	
	Female Children*	336	424	760	
TOTALS ...	... ..	2454	1375	3829	

* Under 15 years of age.

HOME NURSING.

The domiciliary nursing of both pulmonary and non-pulmonary cases is carried out by the Liverpool Queen Victoria District Nursing Association, with whom the Liverpool Hospitals Committee has an agreement and to whom is made a grant-in-aid. During the year, 162

pulmonary and 135 non-pulmonary cases were nursed in their homes, and to these cases 10,559 visits were paid.

DOMICILIARY TREATMENT.

This form of treatment is arranged by the Tuberculosis Officers in such cases as have been examined by them, and in which it is considered to be the most appropriate form of treatment. Co-operation between the medical practitioners and the Tuberculosis Officers is secured in every case by means of a quarterly report from the practitioners. At the end of the year, 1,897 patients remained under domiciliary treatment, of whom 1,023 were persons insured under the National Health Insurance Act, and were in receipt of treatment from their panel doctors, and 874 were not insured, and were under the treatment of doctors of their own choice. The domiciliary reports received relating to insured persons numbered 4,680, and those relating to non-insured persons numbered 4,031. Table IX shows the position at the end of the year.

TABLE IX.

PATIENTS UNDER DOMICILIARY TREATMENT AT THE END OF THE YEAR.

		Pulmonary.	Non-pulmonary.	Totals.
INSURED PERSONS	Males	729	36	765
	Females	239	19	258
NON-INSURED PERSONS	Male Adults ...	151	17	168
	Female Adults ...	458	57	515
	Male Children*	77	28	105
	Female Children*	59	27	86
TOTALS ...	... ..	1713	184	1897

* Under 15 years of age.

The arrangements for home treatment, comprising attendance by medical practitioners and the provision of drugs, were described in the 1925 report. The home treatment scheme continues to work smoothly.

CO-OPERATION AND CO-ORDINATION.

The activities of the Tuberculosis Institutes are now so well known that new or suspected cases of tuberculosis are referred from many sources for examination and treatment.

The most important source of reference is the medical profession. It is the practice of the Tuberculosis Officers to give every notified case an opportunity of attending for examination with a view to public medical treatment, and it is encouraging to note that only occasionally do patients refuse to be examined. Once patients have been examined they are kept under supervision until the disease is arrested or they are deceased or have left Liverpool or cannot be traced. Patients leaving Liverpool are notified to the Medical Officer of Health of the district in which they have gone to reside, and with each notification is sent a report as to their condition, treatment, and fitness or otherwise for employment, together with information in accordance with the statistical requirements of memorandum 37/T.

Co-operation between the Ministry of Pensions and the Tuberculosis Officers continues, and during the year, 181 reports were completed in reference to tuberculous pensioners.

Co-operation between the Tuberculosis Officers and the School Medical Officers is secured inasmuch as all definite and suspected cases discovered by the School Medical Officers are referred by the latter to the Tuberculosis Officer for examination, treatment and report. It is also the practice of the Tuberculosis Officers to report to the School Medical Officers their findings in any patient of school age examined. These cross references are very numerous, and during the year the Tuberculosis Officers rendered 3,773 reports to the School Medical Department.

SANATORIA.

The Fazakerley and Broadgreen Sanatoria are situated within the city boundary, and are equipped and administered by the Port Sanitary and Hospitals Committee. Their accommodation and staff at the end of the year were as follows:—

FAZAKERLEY SANATORIUM. Beds, 335.

Staff:—Medical Superintendent, Principal Resident Medical Officer, Radiologist, three Assistant Resident Medical Officers, Consulting Surgeon, Visiting Dental Surgeon, Consulting Throat Specialist; Matron, Sisters and Nursing Staff numbering 60.

NORMAL ALLOCATION OF BEDS.

	Observa- tion.	Pulmonary Tuberculosis.		Non-pulmonary Tuberculosis.		TOTAL.
		"Sana- torium" Cases	"Advanced" Cases	Disease of Bones and Joints.	Other Conditions	
Adult Males ...	2	43	104	30	9	188
Adult Females ...	1	14	49	16	6	86
Children under 15	1	50	3	2	5	61
TOTAL ...	4	107	156	48	20	335

BROADGREEN SANATORIUM. Beds, 336.

Staff:—Medical Superintendent, Senior Resident Medical Officer, three Assistant Resident Medical Officers, consulting Surgeon, Visiting Dental Surgeon, Radiologist; Matron, Sisters and Nursing Staff numbering 61.

NORMAL ALLOCATION OF BEDS.

	Observa- tion	Pulmonary Tuberculosis.		Non-pulmonary Tuberculosis.		TOTAL.
		"Sana- torium" Cases	"Advanced" Cases	Disease of Bones and Joints.	Other Conditions	
Adult Males ...	—	104	75	—	—	179
Adult Females ...	—	82	35	—	—	117
Children under 15	—	36	4	—	—	40
TOTAL ...	—	222	114	—	—	336

The total accommodation made use of for patients suffering from tuberculosis was 912 beds, allocated in the following manner:—

TOTAL NUMBER OF BEDS NORMALLY AVAILABLE FOR PATIENTS.

	Observation.	Pulmonary Tuberculosis.		Non-pulmonary Tuberculosis.		TOTAL.
		"Sanatorium" Cases.	"Advanced" Cases	Disease of Bones and Joints.	Other Conditions	
Adult Males ...	3	152	222	31	10	418
Adult Females ...	2	96	104	18	9	229
Children under 15...	1	85	6	108	65	265
TOTAL ...	6	333	332	157	84	912

The extent of residential treatment afforded during the year is shown in Table X.

TABLE X.

	In Institutions on Jan. 1st.	Admitted during the year.	Discharged during the year.	Died in the Institutions.	In Institutions on Dec. 31st.
NUMBER OF PATIENTS :—					
Adults—Male					
Pulm. ...	362	652	504	149	361
Non-pulm. ...	43	59	57	3	42
Female					
Pulm. ...	191	383	326	67	181
Non-pulm. ...	24	84	77	6	25
Children*—Male					
Pulm. ...	53	77	78	4	48
Non-pulm.	84	160	133	14	97
Female					
Pulm. ...	80	59	55	13	71
Non-pulm.	77	133	131	8	71
NUMBER OF OBSERVATION CASES :—					
Adults—Male ...	3	18	21	—	—
Female ...	—	11	10	—	1
Children*—Male ...	1	5	6	—	—
Female ...	—	3	3	—	—
TOTALS	918	1,644	1,401	264	897

* Under 15 years of age.

A return showing the immediate results of treatment of patients discharged from residential institutions during the year is given in Table XI.

TABLE XI.

Classification on admission to the institution and condition at time of discharge.				DURATION OF RESIDENTIAL TREATMENT													
				Under 3 months.			3—6 months.			6—12 months.			More than 12 months.				
				M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.	M.	F.	Ch.		
PULMONARY TUBERCULOSIS :—																	
Class T.B. minus—																	
Quiescent	16	11	8	16	11	13	9	3	12	6	3	13		
Improved	29	17	14	35	16	10	19	9	13	6	7	19		
No material improvement	43	34	16	6	5	3	2	3	2	2	1	—		
Died in institutions	8	8	2	1	—	1	1	—	—	1	—	—		
Class T.B. plus, Group 1—																	
Quiescent	—	1	—	2	—	—	2	1	—	1	1	—		
Improved	4	1	—	4	2	2	9	2	—	2	—	—		
No material improvement	5	4	—	1	—	—	1	—	—	—	—	—		
Died in institutions	—	—	—	—	—	—	—	—	—	1	—	2		
Class T.B. plus, Group 2—																	
Quiescent	2	—	—	2	—	—	6	3	—	—	1	—		
Improved	22	13	—	50	21	—	40	21	1	15	15	1		
No material improvement	60	28	—	9	8	—	8	6	—	3	7	1		
Died in institutions	3	1	—	4	—	—	5	4	—	11	2	—		
Class T.B. plus, Group 3—																	
Quiescent	—	—	—	1	—	—	—	—	—	—	—	—		
Improved	1	2	—	7	6	—	8	2	—	4	3	—		
No material improvement	25	18	2	8	19	2	7	8	—	6	3	1		
Died in institutions	62	35	5	26	8	2	14	6	1	12	3	4		
NON-PULMONARY TUBERCULOSIS :																	
Bones and Joints—																	
Quiescent	—	—	6	4	—	6	1	1	13	9	5	33		
Improved	4	5	8	—	1	3	1	1	1	5	1	—		
No material improvement	3	3	8	1	2	2	—	1	1	1	—	2		
Died in institutions	—	1	2	—	2	1	1	—	—	1	1	3		
Abdominal—																	
Quiescent	1	1	4	—	—	8	—	—	8	—	—	5		
Improved	1	5	15	—	1	6	—	—	3	—	—	2		
No material improvement	3	7	13	—	1	—	—	—	1	—	—	—		
Died in institutions	—	1	1	—	—	3	—	—	—	—	—	—		
Other Organs—																	
Quiescent	—	—	1	—	—	3	—	1	4	—	—	1		
Improved	4	—	3	—	—	—	1	—	1	—	1	—		
No material improvement	5	1	5	—	2	—	—	—	—	—	—	—		
Died in institutions	—	1	11	—	—	—	1	—	—	—	—	—		
Peripheral Glands—																	
Quiescent	—	1	9	—	—	16	1	—	11	—	—	2		
Improved	9	29	53	1	1	2	1	—	—	—	2	1		
No material improvement	1	4	4	—	—	—	—	—	—	—	—	—		
Died in institutions	—	—	—	—	—	1	—	—	—	—	—	—		
				Under 1 week.			1—2 weeks.			2—4 weeks.			More than 4 weeks.				
Observation for purpose of diagnosis.																	
{ Tuberculous				...	—	1	—	—	—	—	—	—	1	—	1		
{ Non-tuberculous				...	—	—	—	—	1	—	4	1	3	14	7	5	
{ Doubtful...				...	2	—	—	—	—	—	—	—	—	—	—	—	

TOTAL

AFTER-CARE.

The after-care arrangements in force are as follows :—

- (1) The periodic examination by the Tuberculosis Officers of all cases under public medical treatment.
- (2) Visits paid to patients in their homes by the nurses attached to the Tuberculosis Institutes, and by the health visitors and sanitary inspectors employed by the Health Committee.
- (3) Visits paid to patients in their homes by the nurses of the Queen Victoria District Nursing Association.
- (4) The reference of cases presenting peculiar difficulties to voluntary associations, such as the Child Welfare Association, the Personal Service Society, etc.

During the year the nurses attached to the Tuberculosis Institutes made 11,979 home visits. The health visitors and sanitary inspectors made 14,043 home visits. All these visits are the subject of report to the Tuberculosis Officer concerned. The home visits of the nurses of the Queen Victoria District Nursing Association, to the number of 10,559, have already been referred to.

LEGISLATION AND REGULATIONS.

PUBLIC HEALTH ACT, 1925.

Section 62 of the Public Health Act, 1925, gives power to a Local Authority to obtain a magistrate's order for the removal to an institution of a patient suffering from pulmonary tuberculosis so housed that there is danger of the spread of infection. Although it has not been found necessary to take action under this Act, the possession of the power to do so has proved valuable in persuading to enter a sanatorium patients who would not otherwise have done so.

PUBLIC HEALTH (PREVENTION OF TUBERCULOSIS) REGULATIONS, 1925.

These regulations give power to the Local Authority to prevent patients suffering from tuberculosis in an infectious stage from handling milk under conditions which give rise to the danger of the spread of infection through the medium of the milk. Careful enquiries are made as to the nature of the employment of all tuberculous patients coming

under supervision, particularly in reference to pulmonary cases with a positive sputum. During the year three persons suffering from tuberculosis in an infectious form were found to be living in a dairy. These patients were too ill to be able to follow any form of employment, and they willingly agreed to refrain from attempting to take any part in the milk trade.

NON-PULMONARY TUBERCULOSIS.

Enquiries were made by the Public Health Department into 769 new cases of non-pulmonary tuberculosis arising during 1930, with the following results :—

Ward.					Cases.	Rate per 10,000 of population.	
Exchange	...	...	...	...	107	...	12·7
Abercromby	...	...	...	...	52	...	11·4
Everton	...	...	...	...	93	...	7·8
Kirkdale	...	...	...	...	76	...	11·6
Edge Hill	...	...	...	...	86	...	9·2
Toxteth	...	...	...	...	127	...	9·3
Walton	...	...	...	...	75	...	8·0
West Derby	...	...	...	...	87	...	8·8
Wavertree	...	...	...	...	47	...	5·0
Fazakerley	...	...	...	...	16	...	3·6
Woolton	...	...	...	...	3	...	4·0
					<hr/>		<hr/>
Whole city	...	...	...	...	769	...	8·75
					<hr/>		<hr/>

The following figures summarise the cases of non-pulmonary tuberculosis inquired into during the years 1921-1930 inclusive, divided into two groups, namely, A and B. In group A are included all cases in which there has been no history of exposure to infection from a patient suffering from pulmonary tuberculosis; whereas in group B are

placed all those cases in which there was a history of exposure to infection from a human source. Presumably group A consists of cases which may have been infected from either human or bovine sources, but group B consists almost entirely of infections of human origin.

Site of disease.	GROUP A.		GROUP B.	
	No history of exposure to human infection. Possibly infected from either a human or a bovine source.	History of exposure to human infection. Presumably infected from a human source.	Percentage of total Group A cases.	Percentage of total Group B cases.
Bones and Joints	1,505	138	25·6%	21·6%
Abdominal	1,249	144	21·3%	22·5%
Peripheral Glands ...	1,859	212	31·7%	33·2%
Meninges and Brain ...	601	85	10·2%	13·3%
Skin... ..	176	26	3·0%	4·1%
Urino-genital	144	6	2·5%	0·9%
Other sites and ill-defined	327	28	5·5%	4·4%
TOTALS	5,861	639		

The figures appear to show that there occurs an excess of patients suffering from abdominal tuberculosis and from meningitis among those exposed to infection from a human source, whereas there is an excess of bone and joint disease among patients more likely to have been infected from a bovine source. This conclusion, in so far as it points to infection with abdominal tuberculosis being frequently of human derivation, is at variance with the one usually accepted.

NOTIFICATION AND DEATHS.

During the year an enquiry was made into the circumstances which led to the non-notification of cases which first came to notice on the death returns of local registrars. These cases were 94 in number, made up of 48 cases of pulmonary tuberculosis and 46 cases of non-pulmonary tuberculosis. The reasons for the absence of notification are classified in Table XII below.

TABLE XII.

Disease.	Number of persons who died within the city.	Number of city deaths not notified before death.	Reasons for Non-notification.				
			Diagnosis made at a post-mortem examination.	Diagnosis made after death but without a post-mortem examination.	Notification not completed because death took place very soon after a diagnosis was made.	The doctor thought that the case had been notified previously by another medical practitioner.	Notified elsewhere.
Pulmonary tuberculosis	994	48 4·8%	16 1·6%	5	6	13	
Non-pulmonary tuberculosis	164	46 28%	11 6·7%	9	12	4	

It is noteworthy that the omission of notification in 1·6 per cent. of the cases of pulmonary tuberculosis was unavoidable because a diagnosis was reached as the result of a post-mortem examination. For the same reason the absence of notification in 6·7 per cent. of the cases of non-pulmonary tuberculosis could not be avoided. The balance of the notification omissions, namely, 3·2 per cent. in pulmonary cases and 21·3 per cent. of non-pulmonary cases are avoidable to some extent. Nevertheless, it should be remembered that in some fatal cases a diagnosis of tuberculosis is based on bacteriological and pathological reports, which may not be available until after the death of the patient. From the point of view of the spread of infection, it is the pulmonary cases which are important. In these cases there does not appear to be a serious failure to notify on the part of Liverpool medical practitioners.

Additional to the deaths which took place within the city boundary, there were 57 deaths from pulmonary tuberculosis taking place outside Liverpool but transferred to Liverpool by the Registrar General. Of these cases 26 had not been notified in Liverpool, but may have been notified elsewhere. Similarly, 15 deaths from non-pulmonary tuberculosis were transferred by the Registrar General, of which 3 were cases not previously notified in Liverpool.

OF LIVERPOOL.

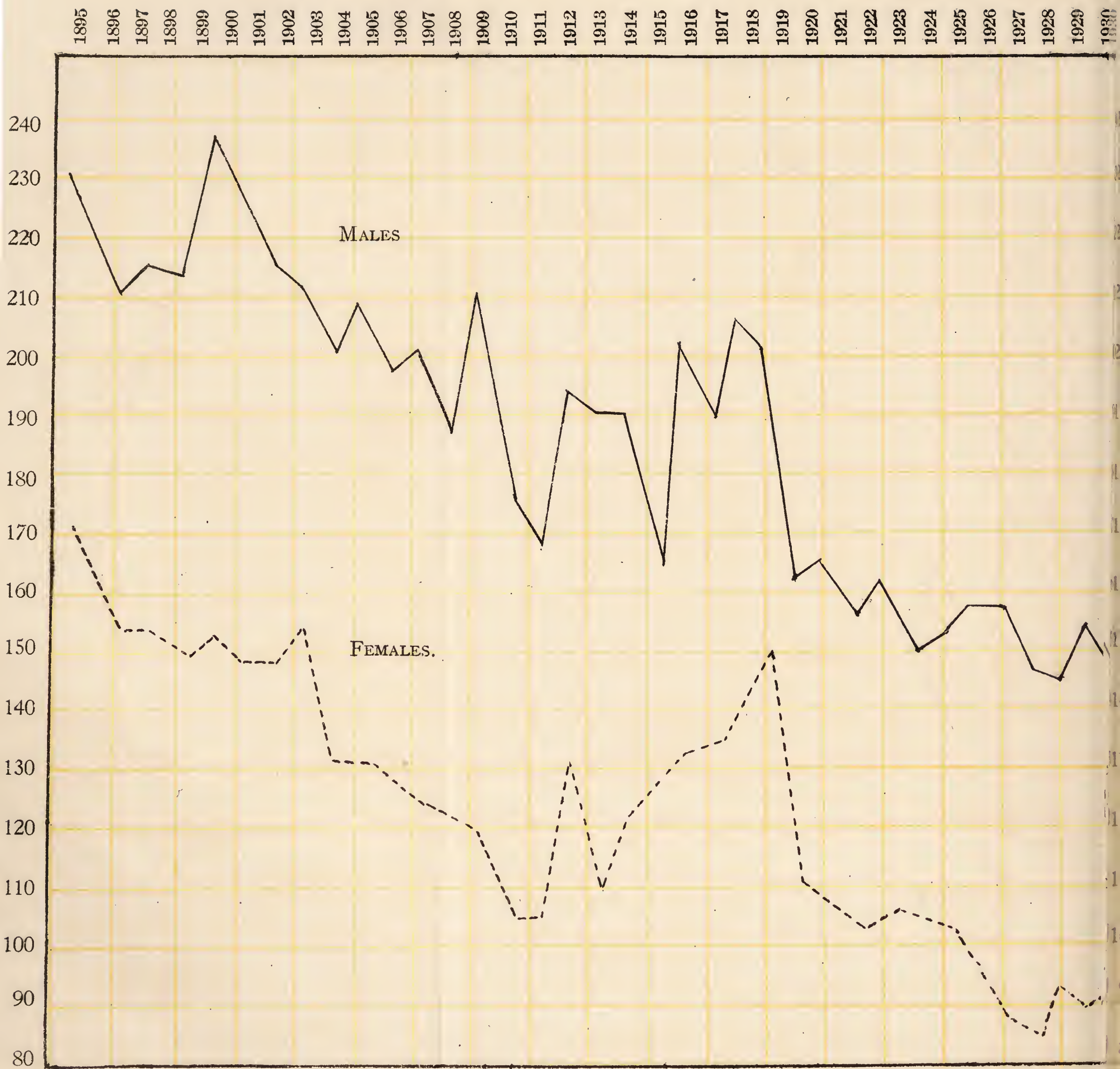
DEATHS PER 1000 OF POPULATION

1891 1892 1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930



CITY OF LIVERPOOL.

PHTHISIS DEATH RATES PER 100,000 OF POPULATION.



DEATHS FROM PULMONARY TUBERCULOSIS.

The number of deaths from pulmonary tuberculosis in Liverpool from 1871 to 1930, together with the number of new cases notified, and the death rates which prevailed in England and Wales are given in Table XIII.

TABLE XIII.

DEATHS FROM PULMONARY TUBERCULOSIS.

Years.	Cases notified.	Number of deaths.	Death rate per 1,000 Liverpool.	Death rate per 1,000 England and Wales.
1871 to 1880	Average yearly figures	Nil	1,506	2.90
1881 to 1890		Nil	1,260	2.35
1891 to 1900		Nil	1,171	1.92
1901 to 1910		2,216*	1,233	1.68
1911 to 1920		2,812*	1,214	1.55
1921.....	2,164	1,048	1.28	0.88
1922.....	2,078	1,086	1.32	0.89
1923.....	2,081	1,046	1.26	0.84
1924.....	2,345	1,056	1.26	0.84
1925.....	2,687	1,051	1.25	0.83
1926.....	2,467	1,033	1.21	0.77
1927.....	2,291	975	1.14	0.79
1928.....	2,468	1,021	1.18	0.755
1929.....	2,512	1,058	1.21	0.79
1930.....	2,464	1,049	1.19	—

* Voluntary notification from 1901 to 1911.

In Table XIV a similar return is made in respect of deaths from non-pulmonary tuberculosis, etc.

TABLE XIV.
DEATHS FROM NON-PULMONARY TUBERCULOSIS.

Years.	Cases notified.	Number of deaths.	Death rate per 1,000 Liverpool.	Death rate per 1,000 England and Wales.	
1871 to 1880	Average yearly figures	Nil	481	·90	·75
1881 to 1890		Nil	527	·98	·70
1891 to 1900		Nil	500	·82	·63
1901 to 1910		100*	416	·56	·50
1911 to 1920		716*	349	·45	·35
1921.....	595	294	·36	·24	
1922.....	553	240	·29	·23	
1923.....	498	263	·32	·23	
1924.....	692	216	·26	·22	
1925.....	828	232	·28	·21	
1926.....	604	217	·26	·19	
1927.....	578	204	·24	·18	
1928.....	648	178	·21	·17	
1929.....	691	216	·25	·17	
1930.....	713	181	·20	—	

* Voluntary notification from 1901 to 1911.

The age and sex distribution of deaths from both pulmonary and non-pulmonary tuberculosis are given in Table XV.

TABLE XV.
AGE PERIODS OF DEATHS FROM TUBERCULOSIS DURING 1930.

Age Periods.	PULMONARY.		NON-PULMONARY.	
	Males.	Females.	Males.	Females.
0—1	—	1	7	8
1—5	11	9	32	30
5—10	6	14	11	14
10—15	11	14	7	3
15—20	47	62	6	8
20—25	64	72	3	8
25—35	101	104	5	8
35—45	124	58	6	5
45—55	137	43	4	7
55—65	76	34	2	2
65 and upwards	40	21	3	2
TOTALS ...	617	432	86	95

The distribution of deaths from pulmonary tuberculosis according to the districts in which the patients resided and according to the quarter of the year during which death took place is given in Table XVI.

TABLE XVI.

DEATHS FROM PULMONARY TUBERCULOSIS IN DISTRICTS.

DISTRICTS.				QUARTERS.								YEAR 1930.		
				March.		June.		Sept.		Dec.		Totals		
				M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.&F.
Exchange	...	...	...	31	21	31	9	17	16	20	13	99	59	158
Abercromby	...	...	...	18	10	8	3	6	3	13	7	45	23	68
Everton	...	...	...	26	25	21	13	16	14	25	13	88	65	153
Kirkdale	...	...	...	10	14	19	10	12	7	15	15	56	46	102
Edge Hill	...	...	...	17	8	17	6	11	7	15	7	60	28	88
Toxteth	...	...	...	30	11	20	18	14	10	17	16	81	55	136
Walton	...	...	...	17	16	10	9	10	6	13	14	50	45	95
West Derby	...	...	...	15	12	14	10	13	8	18	9	60	39	99
Wavertree	...	...	...	11	17	12	7	11	6	6	14	40	44	84
Fazakerley	...	...	...	8	7	9	5	7	4	9	7	33	23	56
Woolton	...	...	...	1	1	3	2	1	...	...	2	5	5	10
City	...	...	...	184	142	164	92	118	81	151	117	617	432	1049
				326		256		199		258				

N.B.—Deaths in public institutions are transferred to the districts from which the patients came.

A similar return in respect of deaths from non-pulmonary tuberculosis is given in Table XVII.

TABLE XVII.

DEATHS FROM NON-PULMONARY TUBERCULOSIS IN DISTRICTS.

DISTRICTS.	Tubercular Peritonitis.		Tubercular Meningitis.		Other forms of Tuberculosis		YEAR 1930. Totals		
	M.	F.	M.	F.	M.	F.	M.	F.	M.&F.
Exchange	1	3	6	5	5	1	12	9	21
Abercromby...	2	2	2	3	3	1	7	6	13
Everton ... ..	...	6	8	5	8	5	16	16	32
Kirkdale	1	...	5	2	2	3	8	5	13
Edge Hill	2	...	6	4	1	3	9	7	16
Toxteth	1	2	4	8	5	2	10	12	22
Walton	1	3	3	3	4	3	8	9	17
West Derby ... ..	...	2	2	3	2	3	4	8	12
Wavertree ... ..	...	1	6	7	2	3	8	11	19
Fazakerley...	1	5	1	5	2	1	4	11	15
Woolton ... ..	...	...	...	...	...	1	...	1	1
City	9	24	43	45	34	26	86	95	181
	33		88		60				

N.B.—Deaths in public institutions are transferred to the districts from which the patients came.

VENEREAL DISEASES.

The purpose of the establishment by the Corporation of venereal disease schemes is to afford facilities for the diagnosis and treatment of these diseases in accordance with the recommendations of the Royal Commission in 1917.

The recommendations may be summarised as follows :—

1. That opportunities should be afforded to sufferers to have free and expert treatment.
2. That extended facilities should be provided for the diagnosis of these diseases.
3. That information as to the dangers of venereal diseases should be disseminated, and particulars given to the public as to the facilities provided for free treatment.

Clinics have been established as under :—

Seamen's Dispensary—Males only.

*Royal Infirmary—Males and Females.

David Lewis Northern Hospital—Males and Females.

*Royal Southern Hospital—Males and Females.

*Stanley Hospital—Males and Females.

*Edge Lane Hospital—Females.

The following summarises the work of the treatment centres for the year 1930 :—

* Beds are reserved for in-patients at these Institutions.

RETURN SHOWING THE NUMBER OF NEW CASES ATTENDING
THE VENEREAL DISEASES CLINICS DURING THE YEAR 1930.
ALSO TOTAL ATTENDANCES AND IN-PATIENT DAYS OF OLD AND
NEW PATIENTS DURING SAME PERIOD.

	Seamen's Dispensary. Males only.	Royal Infirmary. Males and Females.	Royal Southern Hospital. Males and Females.	David Lewis Northern Hospital. Males and Females.	Stanley Hospital. Males and Females.	Edge Lane Medical Home. Females.	To M a F e r s
New cases ...	2,262	1,175	412	294	366	134	443
Old and new patients							
Total attendances	60,067	27,723	13,725	8,563	9,314	—	11992
In-patient days	—	9	3,219	—	192	8,665	1215

SEAMEN'S DISPENSARY.

At this clinic for males, which is open all day, the work continues to increase.

The staff now* consists of three part-time medical officers and four highly trained orderlies.

Excellent results have been recorded both in the treatment of gonorrhœa and of syphilis, and special schemes of treatment particularly suited to the needs of the seafaring population have proved efficient.

By careful interrogation of patients and the keeping of records over several years it has been established that the average seaman who becomes infected has not practised any prophylaxis, and that the taking of alcohol to excess is not such a contributory factor in the acquisition of venereal disease as is generally supposed. It would appear, however, that in men over thirty years of age, venereal disease is frequently associated with the taking of alcohol, not necessarily to excess.

* April, 1931.

During the year under review, 3,193 cases have been advised and treated, of whom 2,262 reported for the first time. Of these, 589 were found not to be suffering from venereal disease, and thus the number of fresh cases of venereal disease seen during the year was almost identical with that of 1929, namely, 1,673 as against 1,675. It is therefore of interest to note that the total attendances of venereal cases rose from 50,734 in 1929 to 59,244 in 1930.

The following table shews the steady progress which has been made at the clinic during the last four years :—

	1927	1928	1929	1930
New patients (including Non-Venereal cases)	1,842	2,043	2,121	2,262
Old and new patients	2,642	2,867	3,023	3,193
Attendances	49,834	55,217	51,381	60,067

The classification of the persons dealt with at the clinic for the first time during the year, and also for the three previous years, was as under :—

	1927	1928	1929	1930
Syphilis	459	435	413	419
Soft chancre	157	131	150	141
Gonorrhœa	931	1,031	1,112	1,113
Non-Venereal Cases	295	446	446	589
	1,842	2,043	2,121	2,262

Evening clinics are held twice weekly at the dispensary, and during the year there were 86 new cases and over 2,000 attendances. These patients have satisfied the medical officer that they cannot attend at the usual clinic hours.

This clinic is availed of by patients of all classes of occupation, but the majority are seafaring men.

Experience has shown that it is the close personal touch with the patient and the interest in his or her case which help to stimulate the sufferer to continue treatment, but the absence of any feeling of ill-health or discomfort may cause the development of a sense of indifference and the desire to avoid the irksome routine of attendance.

Many patients who are suffering from gonorrhœa unfortunately do not report for treatment until a few weeks have elapsed and the disease has extended considerably from the original point of infection, in many cases having complications, and involving important organs. This neglect or inability to seek medical advice may be attributed to the nature of employment or absence on ship at sea, but those who reside locally frequently can and do come for treatment at an earlier stage; the disease, however, is well established in the majority before they present themselves for treatment.

With regard to syphilis, it is found, from figures compiled at the Seamen's Dispensary, that only 25 per cent. of the syphilitic cases attending there appear for treatment in the pre-Wasserman reaction stage, and 24 per cent. appear as early syphilis with primary sore and positive Wasserman test. Those with syphilis in the secondary stage, with rash, sore throat, etc., form only 8 per cent. of the total. The important point, however, is that fully 40 per cent. of patients are in the stage of later or latent syphilis, including treated cases of more than two years' duration.

An analysis of the various types of the total actual number of venereal disease cases met with at the principal clinics is as follows:—

	Percentage of total cases of Diagnosed Venereal Disease.				
Syphilis	33·5%
Soft chancre	4·5%
Gonorrhœa	62·0%

The figures for Liverpool correspond to those for the country generally.

SERVICES RENDERED AT THE VENEREAL DISEASES TREATMENT CENTRES
DURING THE YEAR 1930.

135

	Syphilis.		Soft Chancere.		Gonorrhoea.		Conditions other than Venereal.		TOTAL.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1. Number of cases which— (a) at the beginning of the year under report were under treatment or observation for (b) had been marked off <i>in a previous year</i> as having ceased to attend or as transferred to other Centres, and which returned to the Treatment Centres during the year under report <i>suffering from the same infection</i> ...	1,222	699	46	...	1,576	509	39	18	2,883	1,226
	40	14	2	...	79	10	2	...	123	24
	1,262	713	48	...	1,655	519	41	18	3,006	1,250
2. (a) Number of cases dealt with at the Treatment Centres during the year for the first time with infections of { 1. less than one year's standing	437	169	150	...	1,704	232	1,005	124	3,296	525
{ 2. more than one year's standing	312	68	13	...	249	46	...	...	574	114
	2,011	950	211	...	3,608	797	1,046	142	6,876	1,889
2. (b) Number of cases included in Item 2 (a) known to have received <i>previous treatment at other Centres</i> for the same infection	149	30	7	...	240	21	...	...	396	51
3. Number of cases which ceased to attend— (a) before completing the first course of treatment for... .. (b) after one or more courses but before completion of treatment for (c) after completion of treatment, but before final tests as to cure of ...	202	80	46	...	975	141	...	...	1,223	221
	310	103	...	...	...	...	...	...	310	103
	34	11	10	...	282	9	...	...	326	20

HOSTEL FOR WOMEN.

EDGE LANE HOSPITAL is a home of 25 beds for girls suffering from venereal disease. The total admissions were 134 during 1930.

The patients are all unmarried girls, and are mostly first offenders. Those who are pregnant are treated till their labour is due, when they are transferred to Walton Hospital for confinement, and are re-admitted with their babies after the puerperium. The girls are frequently sent to the Home from the venereal diseases clinics in the town, from doctors, the patrols, the Salvation Army Homes, Homes for Unmarried Mothers, Rescue Homes, Prison and the Institutions. They are all young, their ages varying from 14—23, and they are all Liverpool girls. As the beds are always full, preference is given to girls who have become infected through ignorance or in other ways; the prostitute is only admitted under exceptional circumstances.

The patients who are well enough help in the work of the house—the laundry work and sewing. Games, dancing, reading and plays are recreations organised by the home matron. Those who have babies feed, tend and sew for them themselves—the result being the children are very healthy. Adoption of the children is not encouraged. On leaving the Home the mothers are found places where they can take their babies, or if this is impossible the children are put in nurseries and the mother pays for their keep. The medical officer attends the hospital weekly and sees and treats all the in-patients and a few out-patients, i.e., discharged former patients. The intermediate treatment is done by the sister-in-charge and nurse.

When fit for discharge each girl is, if possible, found a suitable occupation. This is an extremely difficult matter, and is managed by the sister-in-charge.

EDUCATIONAL PROPAGANDA.

At the inauguration of the venereal diseases scheme the Ministry of Health approved of certain educational work being conducted to acquaint the general public and those likely to come into contact with venereal disease of the dangers arising therefrom. After several years' effort in Liverpool, the work has culminated in the merging of the various Merseyside boroughs into a scheme for this and general health purposes under the Merseyside Boroughs Health Education Committee.

Lectures and addresses have been delivered in the districts mentioned by Dr. Hall, the lecturer-organiser of the Committee.

DEATHS FROM EXCESSIVE DRINKING, &c.

It is still gratifying to note that the deaths due to or accelerated by drink continue to remain low, the number being four.

The number of deaths of infants under one year of age from suffocation was 12.

Improved habits and conditions, wider educational influences and other agencies, including those associated with the welfare of motherhood and infancy have all played their part in promoting a more temperate use of alcoholic drinks with results which are eminently satisfactory. Housing operations have unquestionably contributed towards improving the general conditions of life and social habits of the people formerly living in insanitary surroundings in slum areas. The improved condition of the children is especially noticeable; the reports in connection with medical inspection of school children in the poorer localities show welcome improvement, details in reference to this subject being given in the annual report to the Education Committee.

The following table shows the number of deaths from excessive drinking from the year 1900 to date, together with the number of deaths of infants under one year of age from suffocation for the same period :—

	Deaths from excessive drinking.			Deaths from suffocation under 1 year of age.
	Males.	Females.	Total.	
1900—1909 (yearly average)	101	63	164	94
1910—1919 (yearly average)	53	28	81	51
1920—1924 (yearly average)	11	3	14	15
1925	2	4	6	16
1926	1	4	5	10
1927	5	4	9	14
1928	2	2	4	6
1929	1	1	2	2
1930	4	—	4	12

DEATHS FROM GAS POISONING.

Deaths from this cause fall under two headings, namely, from accidental poisoning and suicide. An inquiry is made into each case and a detailed report sent to the Ministry of Health and the Board of Trade. The following table gives the numbers for the last five years, viz. :—

Year.	Accidentally Killed.	Suicide.
1926	5	25
1927	6	20
1928	8	29
1929	9	49
1930	4	46

BLIND PERSONS ACT, 1920.

A Special Sub-Committee of the Health Committee, with the addition of eight co-opted members, are responsible for the administration of the Scheme approved by the Council under the Blind Persons Act of 1920. The Scheme has been approved by the Ministry of Health.

During the year the sum of approximately £36,000 was paid to the Liverpool Workshops for the Blind and the Home Teaching Society, the National Library for the Blind, and the Liverpool Catholic Blind Asylum.

These amounts are used by these bodies for the welfare of blind persons in the city in accordance with the requirements of the approved scheme, the amount paid to the National Library for the Blind being calculated on the estimated number of blind persons receiving the benefits of the Library during the year.

All cases for relief under the Blind Persons Act, 1920, must be certified as blind within the meaning of the Act, by an ophthalmic surgeon.

From April 1st, 1930, to 31st December, 1930, 218 applicants for the Blind Pension have been examined by Ophthalmic Surgeons, and of these 148 were found to be blind under the meaning of the Act; 6 were border line cases, and 64 were not blind.

The causes of blindness as found by examination of the certified cases who were all over 50 years of age are as follows:—

Disease						No.	Per cent.
Cataract	...	...	...	...	...	48	32·5
Glaucoma	...	...	...	...	...	24	16·2
Central Senile Choroiditis	...	...	...	...	...	16	10·8
Myopia	...	...	...	...	...	15	10·1
Corneal Disease	...	...	...	...	...	13	8·8
Optic Atrophy	...	...	...	...	...	11	7·4
Vascular Disease	...	...	...	...	...	7	4·7
Disseminated Choroiditis	...	...	...	...	...	7	4·7
Conjunctival Disease	...	...	...	...	...	3	2·0
Industrial Accident	...	...	...	...	...	2	1·4
Detachment of Retina	...	...	...	...	...	1	·7
Congenital Disease	...	...	...	...	...	1	·7
						<hr/> 148 <hr/>	<hr/> 100·0 <hr/>

With regard to the 48 cataract cases, 32 are hopelessly blind, and 2 are not ripe for operation. The remaining 14 have cataracts which should be removed. Should the operation be successful they would not come under the Blind Persons Act.

Of the 296 eyes involved, 9 were lost as a result of accidents, but only 2 cases are shown under this heading, because in one case both eyes were lost at the same time from an industrial accident. The other man lost one eye as a result of a perforating injury, the second having been already lost as a result of inflammation. The remaining 6 damaged eyes belonged to six different people who lost the second eye at a later date from disease.

Under the heading of conjunctival disease, three cases are shown, one being blind as a result of trachoma, and the remaining two ophthalmia neonatorum.

Although only one case appears under congenital causes, three of the cases now shown under vascular disease have retinitis pigmentosa. These three cases could be shown under congenital causes, for they had at the time of birth the potential elements of blindness which developed later. If so classified the percentage of blindness from this cause would be 2·7 instead of 0·7.

The following tables give the numbers of persons registered as blind at the end of the year 1930-31.

The tables relate to the ages of blind persons resident in Liverpool, the number employed, and the number physically or mentally defective.

TABLE I.

TABLE II.

Ages of Persons Registered as Blind.				Persons aged 16 years and upwards, Employed or Otherwise.			
Age.	Males.	Females.	Total.		Males.	Females.	Total.
0-5 years	...	...	...	Employed	...	...	...
5-16 "	...	...	...	Trained but Unemployed	...	...	...
16-21 "	...	...	...	Under Training	...	...	...
21-30 "	...	...	...	No Training but Trainable	...	...	...
30-40 "	...	...	...	Unemployable	...	...	...
40-50 "	...	...	...	
50-60 "	...	...	...	
60-70 "	...	...	...	
70 years upwards	...	...	...	
	2	3	5		194	53	247
	21	16	37		7	7	14
	20	17	37		32	46	78
	68	40	108		21	3	24
	85	50	135		551	636	1,187
	108	86	194		805	745	1,550
	166	134	300				
	202	187	389				
	157	231	388				
	829	764	1,593				

Blind Persons, Physically or Mentally Defective.			
Mentally Defective	...	...	...
Physically Defective...	...	...	...
Deaf	...	...	...
Combinations of above Disabilities	...	...	...
	35	19	54
	36	30	66
	44	50	94
	11	8	19
	126	107	233

TABLE III.

LOCAL GOVERNMENT ACT, 1929.

During the last six months of the year 1929, preliminary arrangements were made in consequence of the anticipated coming into force of the Local Government Act, 1929.

A Public Assistance Committee was formed consisting of 90 members, 60 being members of the City Council, and 30 being co-opted from the West Derby Board of Guardians and others interested in social work.

On the 1st April, 1930, the whole of the activities of the Guardians was transferred to the Public Assistance Committee, with the following exceptions as provided for under Section 2 of the Local Government Act, 1929, viz. :—

- (a) functions under Part I of the Children Act, 1908, which were allocated to the Maternity and Child Welfare Sub-Committee of the Health Committee, and
- (b) functions under the Vaccination Acts and Orders of the Ministry of Health, which were transferred to the Health Committee.

Following the transfer of the functions of the Guardians the Medical Officer of Health was instructed to report upon the general administration and requirements of the various institutions concerned in the transfer, and on his suggestion a small Sub-Committee was appointed to consider his recommendations.

The following is a list of the institutions transferred, showing the bed accommodation in each :—

Walton Hospital	...	...	...	...	2,052 beds.
Smithdown Road Hospital	...	...	...	...	1,370 „
Belmont Road Institution	...	...	...	...	1,754 „
Kirkdale Homes	...	...	...	...	1,431 „
Mill Road Infirmary	...	...	...	...	807 „
Alder Hey Hospital (children)	...	...	...	...	913 „
Fazakerley Cottage Homes	...	...	...	...	591 „
Wavertree Cottage Homes	...	...	...	...	460 „
Cleaver Sanatorium	...	...	...	...	200 „
Seafield House	...	...	...	...	235 „
Boys' Home, Shaw Street	...	...	...	...	79 „
Total bed accommodation					9,892

This accommodation is divided approximately as follows :—

Maternity	...	...	...	...	...	...	200 beds.
Maternity	...	...	...	...	...	...	109 cots.
Mental	...	...	...	...	...	...	1,075 beds.
Sick	...	...	...	...	...	...	3,475 „
Infirm	...	...	...	...	...	...	1,859 „
Healthy	...	...	...	...	...	...	906 „
Infectious	...	...	...	...	...	...	104 „
Children	...	...	...	...	...	...	1,964 „
Tuberculosis	...	...	...	...	...	...	200 „
							<hr/>
							9,892 „
							<hr/>

Accommodation had already been provided by the Port Sanitary and Hospitals Committee for the various forms of infectious disease, and also for cases of tuberculosis, the number of beds being as follows :—

INFECTIOUS CASES—

City Hospital North	...	...	...	...	168 beds.
Do. South	...	...	...	...	101 „
Do. East	...	...	...	...	156 „
Do. Fazakerley	...	...	...	...	228 „
Do. Fazakerley Annexe	...	...	...	...	150 „
Do. Sparrow Hall	...	...	...	...	160 „
					<hr/>
					963 „
					<hr/>

TUBERCULOSIS—

Fazakerley Sanatorium	...	...	...	...	264 beds.
City Hospital, Fazakerley	...	...	...	...	71 „
Broadgreen Sanatorium	...	...	...	...	336 „
					<hr/>
					671 „
					<hr/>

The total number of beds therefore was 1,634

In addition, the Health Committee has six Day Nurseries, with accommodation for 246 children, an observation ward with 18 cots for infants at the Carnegie Infant Welfare Centre, and a small Maternity Home containing 18 beds at Quarry Bank, Hawthorne Road.

It may be generally stated that all this hospital accommodation, large as it appears to be, is fully utilised, and at times, and in some institutions, inconveniently so. The sections which show this most markedly are the medical, surgical and maternity, which form a large percentage of the total beds. The sanatoria are always fully occupied, and the same may be said of the accommodation for children at Alder Hey.

In July, 1930, the Medical Officer of Health reported to the Sub-Committee and made certain recommendations relating to Walton Hospital, Mill Road Infirmary, Smithdown Road Hospital, Alder Hey Hospital and Fazakerley Hospital, chiefly in relation to accommodation required for maternity cases, and also the enlargement of the nurses' homes at these establishments. The Medical Officer also considered the question of appropriation of certain hospitals under the Local Government Act, 1929, for public health purposes, but recommended that as a preliminary step all hospitals dealing with the sick should be placed under the administration of one committee, namely, the Port Sanitary and Hospitals Committee, and those hospitals transferred from the late West Derby Guardians to the Corporation should be administered by the Port Sanitary and Hospitals Committee on behalf of the Public Assistance Committee.

He drew attention to the desirability of dissociating the treatment of the sick from the relief of destitution, and recommended that the various medical institutions under the City Council should be as closely associated as possible.

It was also pointed out that it would be of the greatest importance, obviously giving administrative advantages, to have under the same Committee institutions treating the same class of patients and administered by the same class of officials.

The recommendation was approved, and in November, 1930, all the Institutions were transferred for administrative purposes to the Port Sanitary and Hospitals Committee, the membership of that Committee being increased from 22 to 34, with two advisory members from the Borough of Bootle. When the matter was considered by the newly constituted Port Sanitary and Hospitals Committee at their first meeting, it was decided that each institution should have a Sub-

Committee consisting of a Chairman and two members of the General Committee, and the whole of the Port Sanitary and Hospitals Committee was constituted the House Sub-Committee to deal with the administration of the various hospitals. Other Sub-Committees formed were as follow :—

Contracts and Supplies Sub-Committee.

Buildings and Engineering Sub-Committee.

Transport Sub-Committee.

Welfare Sub-Committee.

This arrangement has been carried into effect and appears to work well.

A draft agreement was prepared between the Lancashire County Council, the Bootle Borough Council and the Liverpool City Council, making provision for the removal, admission, maintenance and medical care of poor persons from the townships of Waterloo, Seaforth, Litherland, Great Crosby, Little Crosby, Sefton, Netherton, Ince Blundell, Thornton, Aintree, Ford and Lunt, and the County Borough of Bootle.

This will include persons suffering from infectious diseases not provided for in the infectious hospitals for the districts named, but it is provided in the agreement that when persons so removed to Liverpool Institutions are found to be suffering from infectious disease, the Liverpool Council shall have the right to remove such persons to one of the City Infectious Hospitals and charge an agreed sum for their maintenance and treatment whilst they remain in the infectious hospitals or sanatoria.

The removal of these cases to Liverpool institutions from the county areas and the Borough of Bootle has been carried out for many years by the late Guardians of the Poor for the West Derby District, and this agreement will confirm the continuance of the existing practice.

PART I, CHILDREN ACT, 1908.

A considerable part of the work under Part I of the Children Act, which was transferred to the Maternity and Child Welfare Sub-Committee, is now being carried out by the staff of Health Visitors.

PUBLIC VACCINATORS.

In accordance with the instructions of the Ministry of Health, the Public Vaccinators were given notice by the Guardians to terminate their contracts on the 31st March, 1930, and contracts on similar lines

were entered into by the Health Committee as from the 1st April, 1930. The city is divided into twelve districts, and there is a Public Vaccinator appointed to each. There are also eight Public Vaccinators attached to the Institutions transferred to the City Council.

VACCINATION OFFICERS.

The four Vaccination Officers employed by the Guardians, together with four clerks, were transferred as from the 1st April, 1930, to the staff of the Public Health Department under the control of the Health Committee. The city is divided into four districts for this work, and two of the Vaccination Officers also carry out the duties required under the Vaccination Order of 1930 in part of the Lancashire County Area, and also in the County Borough of Bootle. This arrangement is simply to carry on the work previously under the control of the West Derby Guardians, and obviated making any alteration in the districts allocated to each Vaccination Officer.

Reports on the work of the various Transferred Hospitals, etc., during the year 1930 will be issued as a separate report.

INFECTIOUS HOSPITALS and SANATORIA.

During the year 1930 the City Infectious Hospitals and Sanatoria were in full commission.

At the end of the year the amount of hospital accommodation for infectious cases was as follows:—

City Hospital North	...	...	...	...	168 beds.
„ South	...	...	...	...	101 „
„ East ...	...	...	...	...	156 „
„ Fazakerley	...	...	...	...	299 „
„ Fazakerley Annexe...	...	...	...	...	150 „
„ Sparrow Hall	...	...	...	...	160 „
Fazakerley Sanatorium	...	...	...	...	264 „
Broadgreen Sanatorium	...	...	...	...	336 „
					1,634 „

At the City Hospital, Fazakerley, 71 beds are set aside for the treatment of tuberculous patients, in addition to the beds at the Fazakerley Sanatorium.

During the year the accommodation at the City Infectious Hospitals was taxed to its fullest capacity owing to an extensive outbreak of diphtheria, followed by a considerable increase in the number of cases of measles. To assist in dealing with the large number of cases reported for removal to hospital, arrangements were made for utilising beds available at some of the institutions transferred from the Guardians, viz.:—Belmont Road Institution, Walton Hospital, Smithdown Road Hospital and the Olive Mount Cottage Homes.

At the beginning of the year there were 743 cases of scarlet fever under treatment in hospital, but this number steadily diminished month by month, and at the end of the year stood at 257. During this time, however, the cases of diphtheria were increasing from 313 at the beginning of the year to 566 at the end of the year. The outbreak of measles occurred towards the end of May. At the beginning of the year 22 cases of measles were under treatment in hospital. By the month of June this figure was increased to 74, and by the end of the year 190 beds were required for patients suffering from this disease.

The temporary accommodation provided in the transferred institutions proved of the greatest service in dealing with the large number of cases requiring hospital treatment, and enabled practically every case reported to be removed to hospital without delay.

Beds were provided at the various hospitals during the year for patients suffering from the following diseases, viz. :—Scarlet fever, diphtheria, measles, whooping cough, enteric fever, erysipelas, cerebrospinal fever, encephalitis lethargica, anthrax, influenzal pneumonia and chickenpox.

The value of the hospitals, and the immense amount of useful work performed, is shown by the fact that no less than 10,394 patients were treated within their walls during the year.

The Hospitals Committee have agreed with various Local Authorities to receive cases of infectious disease from districts beyond the city boundary, namely, Sefton Rural District, Waterloo and Seaforth, Great Crosby, Little Crosby, Leasowe Hospital, and the Children's Convalescent Home, West Kirby.

Arrangements have also been made to deal with any case of cholera, yellow fever, or plague, which may arise in any of the neighbouring Urban or Rural Districts. A suitable charge is made in each case.

OUTSIDE AREAS AND SMALLPOX.

The question of smallpox cases in neighbouring areas was specially considered by the Port Sanitary and Hospitals Committee in 1928. Arrangements had been in force for some years with several of the local authorities in the district that any cases of smallpox occurring in their areas should be accommodated in Liverpool hospitals.

It has always been recognised that the presence of smallpox in areas adjoining or close to Liverpool is a matter in which the city is vitally interested, as an outbreak of this disease, unless promptly dealt with, might result in the spread of the infection to the Liverpool area, and also do considerable harm to the trading interests of the city and port.

A number of adjoining local authorities entered into an agreement to pay a retaining fee each year towards the upkeep of a smallpox hospital, the payment to be based on census population. A further charge is made for the maintenance of each patient sent into the hospital for treatment.

THE HOSPITAL SERVICE.

FAZAKERLEY HOSPITALS AND SANATORIUM

REPORT OF THE MEDICAL SUPERINTENDENT.

During the year ending 31st December, 1930, 3,826 patients were admitted to the Fazakerley Hospitals (excluding the Fazakerley Sanatorium), a decrease of 1,470 as compared with 1929.* The number of cases under treatment reached a maximum of 654 on 29th January, an increase of 11 on the highest figure for the previous year. The number of admissions to individual hospitals was as follows:—

Fazakerley Isolation Hospital.	Fazakerley Annexe Hospital.	Sparrow Hall Hospital.	Total.
1,967	980	879	3,826

REMOVAL OF TONSILS AND ADENOIDS.

The operation for removal of tonsils and adenoids has been performed upon 186 patients as follows:—Scarlet fever, 55; Scarlet fever carriers, 2; Diphtheria, 83; Diphtheria carriers, 19; Tonsillitis, 9; Mumps, 1; Measles, 1; Tuberculosis, 8; miscellaneous, 8.

In addition 20 miscellaneous operations were performed upon the throat, nose and ear.

* The reduction in the number of cases is mainly due to the use of the hospital for diphtheria rather than scarlet fever, for which latter disease the average length of stay in hospital is considerably less than for diphtheria.

CUTANEOUS ANTHRAX.

A FURTHER SERIES OF CASES TREATED AT THE CITY HOSPITAL, FAZAKERLEY, DURING THE PAST YEAR, WITH ANTI-ANTHRAX SERUM, WITHOUT RECOURSE TO SURGICAL EXCISION OF THE LOCAL LESION.

Series No. cont'd from 1929.	Age.	Sex.	Occupation.	Days ill on admission.	Site of Infection.	Amount of Serum, in c.cs., injected daily.	Clinical Remarks.	Result.
42	45	M.	Tannery hand.	3	Back of neck.	200, 200, 200, 200	Large area, 3" x 4".	Recovery.
43	39	M.	Dock labourer.	5	Left cheek.	190, 150	Nil.	Recovery.
44	21	M.	Tannery hand.	5	Left eyelids and cheek.	200, 200	Extensive swelling. Gravely toxic on arrival.	Died in 50 hours
45	21	M.	Tannery hand.	2	Left temple.	110, 150	Nil.	Recovery.
46	21	M.	Tannery hand.	2	Left eyelids.	150, 150, 150, 100, 150, 200 140, 140, 200, 160 120, 180, 230, 150	Large area with deep ulceration. Skin graft later.	Recovery.
47	40	M.	Motor Lorry Driver.	4	Back of neck.	240, 230, 260, 310, 250	Small area, 1" x 1½" with great swelling.	Recovery.
48	55	M.	Dock labourer.	3	Root of neck.	400, 300, 400, 300	Much oedema and toxæmia on admission. Almost moribund.	Died in 60 hours
49	17	M.	Dock labourer.	4	Forehead,	300, 200, 300	Dangerous swelling.	Recovery.
50	23	M.	Tannery hand.	4	Side of neck.		Swelling tending forward	Recovery

TUBERCULOSIS.

X-RAY DEPARTMENT.

During 1930, 1,114 screen examinations were made, and 1,316 films taken.

ARTIFICIAL LIGHT TREATMENT.

The undermentioned number of patients received Light treatment :--

By carbon arc (general application) ...	...	98
By tungsten arc (local application) ...	...	27

A total of 5,202 exposures was made.

LARYNGOLOGICAL CLINIC.

During the year a weekly laryngological clinic has been held, at which 179 male patients and 51 female patients suffering from tuberculosis were submitted to a thorough oto-rhino-laryngological examination. The findings of these examinations are given in Tables I and II, a distinction being made between patients suffering from pulmonary tuberculosis in various stages and those suffering from non-pulmonary tuberculosis.

TABLE I.
MALE PATIENTS.

Principal lesions discovered in the passages of the Nose and Throat, etc.	Site and extent of Tuberculous Disease.				Totals.
	Pulmonary tuberculosis.			Non- pulmonary tuber- culosis.	
	Sputum negative.	Sputum positive.			
		Disease not advanced.	Disease advanced.		
Atrophic rhinitis ...	5	4	6	0	15
Hypertrophic rhinitis ...	1	0	3	0	4
Septal deviation ...	2	0	1	0	3
Epistaxis ...	0	0	1	0	1
Catarrhal otitis media ...	1	1	6	1	9
Suppurative otitis media ...	2	1	10	0	13
Tonsillar sepsis ...	4	0	5	6	15
Otitis externa ...	2	0	1	0	3
Ulcer of pharynx ...	0	0	1	0	1
Laryngeal disease ...	8	4	47	1	60
Sinus disease ...	2	0	1	0	3
Ulcer of cheek ...	0	0	1	0	1
No disease found ...	17	2	29	3	51
Totals ...	44	12	112	11	179

TABLE II.

FEMALE PATIENTS.

Principal lesions discovered in the passages of the Nose and Throat, etc.	Site and extent of Tuberculous Disease.				Totals.
	Pulmonary tuberculosis.			Non- pulmonary tuber- culosis.	
	Sputum negative.	Sputum positive.			
		Disease not advanced.	Disease advanced.		
Atrophic rhinitis ...	0	0	3	0	3
Hypertrophic rhinitis ...	0	0	4	0	4
Septal deviation ...	0	0	1	0	1
Ulcer of inferior turbinal	0	0	1	0	1
Catarrhal otitis media ...	0	0	2	0	2
Suppurative otitis media ...	0	0	5	0	5
Tonsillar sepsis ...	2	0	0	2	4
Otitis externa ...	0	0	1	0	1
Otosclerosis ...	0	0	1	0	1
Laryngeal disease ...	0	1	20	0	21
Foreign body in oesophagus	1	0	0	0	1
No disease found ...	3	1	1	2	7
Totals ...	6	2	39	4	51

An analysis of the operations performed is given in Table III.

TABLE III.

Cauterisation of inferior turbinals ...	10
Cauterisation of larynx ...	18
Cauterisation of cheek ...	10
Alcohol injection of superior laryngeal nerve...	1
Division of internal laryngeal nerve ...	1
Lipiodol injection (crico-thyroid) ...	2
Submucous resection of nasal septum ...	2
Intranasal antrostomy ...	3
Drainage of ethmoid and removal of polypi...	2
Oesophagoscopy for removal of foreign body ...	1
Removal of tonsils ...	15
Total ...	65

Of particular interest are the patients in whom were found laryngeal disease. Tables I and II show that approximately 33 per cent. of the male patients and 41 per cent. of the female patients

examined exhibited laryngeal disease occurring alone or complicated by other lesions of the upper respiratory tract. These figures include patients who exhibited anæmia or congestion of the laryngeal mucous membrane, and weakness of the laryngeal muscles, conditions considered to be pre-tuberculous.

An analysis of the 60 male patients exhibiting laryngeal disease is given in Table IV.

TABLE IV.
MALE PATIENTS.

Laryngeal disease found.	Site and extent of Tuberculous disease.				Remarks.
	Pulmonary tuberculosis.			Non-pulmonary tuberculosis.	
	Sputum Negative.	Sputum positive.			
		Disease not advanced.	Disease advanced.		
Recurrent nerve paralysis	0	0	0	1	} Not tuberculous.
Cyst of epiglottis ...	0	1	1	0	
Anaemia ...	2	0	4	0	} Probably becoming tuberculous.
Congestion ...	4	1	8	0	
Tuberculosis ...	0	3	28	0	} Tuberculous.
Tuberculosis with syphilis	2	0	5	0	

In Table V is given a similar analysis of female patients.

TABLE V.
FEMALE PATIENTS.

Laryngeal disease found.	Site and extent of Tuberculous disease.					Remarks.
	Pulmonary tubereulosis.			Non- pulmonary tuber- culosis.		
	Sputum Negative.	Sputum positive.				
		Disease not advanced.	Disease advanced.			
Anaemia 	0	0	3	0	} Probably becoming Tuber- culous. Tuber- culous.	
Congestion	0	0	2	0		
Tuberculosis 	0	1	15	0		

In the treatment of laryngeal disease, voice-rest was advised in all cases. Several patients who left the sanatorium while on voice-rest neglected to continue the treatment. The continuance of sanatorium life appears to be very necessary for patients suffering from laryngeal involvement.

In Table VI are shown the results of treatment in 35 cases by voice-rest alone.

TABLE VI.

RESULTS OF TREATMENT BY VOICE-REST ALONE.

Larynx healed ...	...	15 cases.	(Average time for complete healing, 4 months.)
Larynx improved ...	...	10	„
Larynx in statu quo ...	...	5	„
Larynx worse ...	...	2	„
Patient died ...	...	3	„

Galvano-cautery puncture by indirect laryngoscopy was employed in eight cases with the results given in Table VII.

TABLE VII.

RESULTS OF TREATMENT BY GALVANO-CAUTERY PUNCTURE.

Larynx healed	1 case.	3 treatments.
Larynx improved	4 cases.	1, 2, 4 and 1 treatments respectively.
Larynx in statu quo	1 case.	2 treatments.
Patient died	1 case.	—

An interval of at least four weeks was allowed to elapse between successive treatments in the same patient.

Gold salts were administered to two patients with active laryngeal ulceration. In both cases the larynx healed completely.

Artificial pneumothorax was performed on two patients with active laryngeal lesions. There was improvement in one case and no change in the laryngeal condition of the other.

It has been clear that voice-rest alone or combined with other forms of treatment has proved to be most effective in bringing about healing in laryngeal lesions.

DENTAL WORK.

The visiting dental surgeon has carried out the following work during the year:—

Fillings	...	...	...	...	...	56
Extractions under gas	...	...	...	...	...	4
Extractions under local anæsthetic	...	...	...	...	...	225
Miscellaneous	...	...	...	...	...	111

SANATORIUM SCHOOL.

The average number of children receiving instruction in the school attached to the Sanatorium for the year is 47, comprised as follows:—

Pulmonary cases with negative sputum	...	30
Pulmonary cases with positive sputum	...	12
Non-pulmonary cases	...	5

Regular visits have been paid by the dental surgeon and routine repair work has been carried out as in previous years.

Tonsils and adenoids have been removed in three cases only, the advanced stage of the disease making this operation undesirable in many of the cases.

The head teacher makes the following report:—

The number of scholars who have had instruction is 70, 29 have been discharged, 6 deceased, leaving 35 on roll.

The appearance of the children as a whole was brighter and more alert, but their educational ability was much less than their ability in manual work.

Throughout the year the new entrants have been younger, consequently handwork, viz., needlework, leathercraft, raffia work, and

cane basketry, have been of a more elementary character than in former years.

Each morning session's instruction is confined to reading, writing, spelling, and arithmetic. A "rest period" is allotted to each pupil during school hours. Whenever possible, lessons are taken in the open air, and much time is devoted to gardening and nature study. Two educational visits have been made during the year, one to the City Art School's Exhibition of Drawings and Handicrafts, and one to the Autumn Exhibition of Pictures and Handicrafts. These visits never fail to prove an incentive to future work.

Simple rules of health are included in the weekly cookery lesson, in so far as they are connected with cleanliness in the kitchen.

The cultural subjects, poetry, music and drawing also figure largely in the work of the school.

BROADGREEN SANATORIUM.

REPORT OF THE MEDICAL SUPERINTENDENT.

The age periods of the cases on admission were as follows :—

Ages.	Under 5	5-15	15-25	25-35	35-45	45-55	Over 55	Totals.
Males ...	1	32	80	70	75	79	40	377
Females ...	0	14	109	67	38	24	8	260
Totals ...	1	46	189	137	113	103	48	637

While special forms of treatment, such as the injection of gold salts, and the induction of artificial pneumothorax, controlled by X-ray examination, are of undoubted value in certain types of case, and have been employed where suitable, the main line of treatment has been the systematic grading of rest and exercise. In suitable cases graduated occupation of some sort is prescribed under medical supervision, with

a view to supplying the necessary exercise and at the same time providing mental occupation for the patient, who is given as wide a choice of work as possible. Gardening is a form of occupation for many: others are engaged in carpentry, including the making of poultry houses and appliances: others are engaged in the poultry farm, including older boys who may benefit by experience in practical poultry-keeping: while some are engaged in boot-repairing.

Mental occupation is further provided for by organised recreation—bowls, croquet, putting, billiards, etc.—under the supervision of a Recreation Committee of patients; and the central lending library, with catalogues in each ward compiled by patients, has proved very valuable.

We have again been indebted to many concert parties for their kindness in providing concerts for the patients on nearly every week during the winter months.

SCHOOL.—During the year the new pupils amounted to 33, and a similar number left. The average number on roll was 41, and the average attendance 30·6. Particular attention is paid in the mornings to arithmetic, reading, etc.; in the afternoons the children are engaged in handwork. The main subjects in handwork have been as last year—raffia and cane work, rug-making, pewter work, fretsaw work, painting, knitting and sewing. New subjects were bead-work and chip-carving; while the older girls have been taught the use of the sewing-machine. As in previous years, gardening under the supervision of the teachers has taken the form of the cultivation of individual plots of ground. Exhibitions of the school-children's work, to which adult patients and staff and the relatives of the school-children were invited, have proved very interesting, as did the annual concert given by the school-children. The costumes worn in the concert were, as on previous occasions, made by the pupils.

DENTAL TREATMENT.—The cases attended to by the visiting Dental Surgeon have been treated chiefly with a view to remedying sepsis. The number of extractions amounted to 300; other miscellaneous operations, such as filling and scaling, amounted to 13.

The following tables, prepared by the medical staff of each of the city hospitals show the number of patients admitted, the nature of the illness in each case and the results of treatment at each of the eight hospitals during the year 1930 :—

CITY HOSPITAL NORTH, NETHERFIELD ROAD.

Visiting Physician, Dr. R. I. RICHARDSON.

Resident Physician, Dr. W. A. DAVIES.

DISEASES.	Remaining Dec. 31st, 1929.	Admitted during the year.	Transferred from other City Hospitals.	Total under Treatment during the year.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged Cured.	Remaining at end of year.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent. of Admissions.
Scarlet Fever.	175	1253	32	1460	386	11	967	85	3	11	0·88
Enteric Fever.	—	—	—	—	—	—	—	—	—	—	—
Diphtheria ...	—	75	20	95	—	—	43	48	—	4	5·33
Measles ...	—	5	—	5	—	—	4	1	—	—	—
Whooping Cough ...	—	—	—	—	—	—	—	—	—	—	—
Phthisis ...	—	—	—	—	—	—	—	—	—	—	—
Other Diseases	2	11	—	13	—	—	9	4	—	—	—
Isolation and Observation Cases ...	4	15	—	19	—	—	15	4	—	—	—
Totals ...	181	1359	52	1592	386	11	1038	142	3	15	1·10

CITY HOSPITAL SOUTH, GRAFTON STREET.

Visiting Physician, Dr. H. A. CLARKE.

Resident Physician, Dr. RITA HENRY.

DISEASES.	Remaining Dec. 31st, 1929.	Admitted during the year.	Transferred from other City Hospitals.	Total under Treatment during the year.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged Cured.	Remaining at end of year.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent. of Admissions.
Enteric Fever..	—	—	—	—	—	—	—	—	—	—	—
Scarlet Fever.....	100	645	—	745	—	199	477	64	—	5	0·77
Diphtheria	1	56	—	57	—	—	33	20	—	4	7·1
Measles	—	111	—	111	—	—	105	—	—	6	5·4
Other Diseases.....	1	29	—	30	—	—	26	3	1	1	3·4
Isolation & Obser- vation Cases	1	20	—	21	—	—	16	5	—	—	—
Totals	103	861	—	964	—	199	657	92	2	16	1·8

CITY HOSPITAL EAST, MILL LANE, OLD SWAN.

Visiting Physician, DR. H. A. CLARKE.

Resident Medical Officer, DR. F. WEIGHTMAN.

DISEASES.	Remaining Dec. 31st, 1929.	Admitted during the year.	Transferred from other City Hospitals.	Total under Treat- ment during the year.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged.	Remaining at end of year.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent. of Admissions.
Scarlet Fever.....	—	—	—	—	—	—	—	—	—	—	—
Enteric Fever	—	—	—	—	—	—	—	—	—	—	—
Diphtheria.....	169	1534	—	1703	—	12	1450	170	19	71	4·6
Measles	—	—	—	—	—	—	—	—	—	—	—
Other Diseases	—	59	—	59	—	9	41	3	3	6	10·2
Isolation and Obser- vation Cases ...	—	—	—	—	—	—	—	—	—	—	—
Totals.....	169	1593	—	1762	—	21	1491	173	22	77	4·8

CITY HOSPITAL, FAZAKERLEY.

Medical Superintendent, DR. C. RUNDLE.

Principal Resident Medical Officer, DR. A. E. HODGSON.

Assistant Resident Medical Officers, DRs. C. ABERNETHY and L. DENIL.

DISEASES.	Remaining Dec. 31st, 1929.	Admitted during the year.	Transferred from other City Hospitals.	Total under Treatment dur- ing the year.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged Cured.	Remaining at end of year.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent. of Admissions
Scarlet Fever .	85	205	66	356	—	51	269	32	—	4	1.9
Enteric Fever	—	15	—	15	—	—	12	3	—	—	—
Paratyphoid Fever	—	18	—	18	—	—	18	—	—	—	—
Diphtheria.....	122	1079	15	1216	—	35	978	126	19	77	7.1
Smallpox	—	—	—	—	—	—	—	—	—	—	—
Measles	—	75	2	77	—	—	41	27	1	9	12.0
Whooping Cough.....	—	11	—	11	—	—	7	4	—	—	—
Phthisis	—	—	—	—	—	—	—	—	—	—	—
Other Diseases.	60	454	15	529	—	1	443	60	5	25	5.5
Isolation and Observation Cases.....	—	12	—	12	—	—	12	—	—	—	—
Totals.....	267	1869	98	2234	—	87	1780	252	25	115	6.1

CITY HOSPITAL, FAZAKERLEY ANNEXE.

Medical Superintendent, Dr. C. RUNDLE.

Resident Medical Officer, Dr. A. E. BURNS.

DISEASES.	Remaining Dec. 31st, 1929.	Admitted during the year.	Transferred from other City Hospitals.	Total under Treatment dur- ing the year.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged Cured.	Remaining at end of year.	Died within 48 hours of Admission.	Total Deaths.	Total Mortality per cent. of Admissions.
Scarlet Fever.....	61	221	59	341	—	44	260	35	—	2	0·9
Enteric Fever	—	5	—	5	—	—	4	1	—	—	—
Diphtheria	41	549	18	608	—	27	442	94	5	45	8·2
Measles	—	1	—	1	—	—	1	—	—	—	—
Whooping Cough ...	—	2	2	4	—	1	2	—	—	1	5·0
Other Diseases.....	22	114	9	145	—	3	127	13	—	2	1·7
Isolation and Observation Cases	4	—	—	4	—	—	4	—	—	—	—
Totals	128	892	88	1108	—	75	840	143	5	50	5·6

CITY HOSPITAL, SPARROW HALL.

Medical Superintendent, DR. C. RUNDLE.

Resident Medical Officer, DR. E. HARDING.

DISEASES.	Remaining Dec. 31st. 1929.	Admitted during the year.	Transferred from other City Hospitals.	Total under Treatment during the year.	Transferred to Convalescent Hospital.	Transferred to other City Hospitals.	Discharged Cured.	Remaining at end of year.	Died within 48 hours of admission.	Total Deaths.	Total Mortality per cent of Admissions
Scarlet Fever.....	157	274	59	490	—	49	439	—	—	2	0·7
Smallpox	—	—	—	—	—	—	—	—	—	—	—
Whooping Cough...	—	—	—	—	—	—	—	—	—	—	—
Diphtheria.	12	487	46	545	—	32	363	140	—	10	2·05
Measles	—	—	—	—	—	—	—	—	—	—	—
Other Diseases	—	9	2	11	—	5	6	—	—	—	—
Isolation and Observation Cases	5	2	—	7	—	—	7	—	—	—	—
Totals.....	174	772	107	1053	—	86	815	140	—	12	1·5

FAZAKERLEY SANATORIUM.

Medical Superintendent, Dr. C. RUNDLE

Principal Resident Medical Officer, Dr. W. CRANE.

*Assistant Resident Medical Officers, Drs. B. J. ELLIOTT and
J. W. PICKUP.*

Radiologist, Dr. A. E. CONNOLLY.

DISEASES.	Remaining Dec. 31st, 1929.	Admitted during the year.	Transferred from other City Hospitals	Total under Treatment during the year.	Transferred to Convalescent Hospital	Transferred to other City Hospitals	Discharged.	Remaining at end of year	Died within 48 hours of Admission	Total Deaths
Tuberculosis	322	398	—	720	—	—	328	318	—	74
Isolation and Observation Cases ...	3	18	—	21	—	—	20	1	—	—
	325	416	—	741	—	—	348	319	—	74

BROADGREEN SANATORIUM.

Medical Superintendent, Dr. H. R. MACINTYRE.

Senior Resident Medical Officer, Dr. O. F. THOMAS.

Assistant do do. Dr. MARGT. FERRIER.

do. do. do. Dr. EDWARD MILES.

do. do. do. Dr. FRANK WELTON.

DISEASE	Remaining 31st Dec., 1929.	Admitted during the year.	Total under Treatment during the year.	Transferred to Convalescent Hospital	Transferred to other Sanatoria.	Discharged.	Remaining at end of year	Died within 48 hours of Admission	Total Deaths
Phthisis.....	303	637	940	—	—	516	280	3	144

SANITARY ADMINISTRATION.

For the purpose of carrying out the requirements of the various Sanitary Acts of Parliament and the Orders, Bye-laws and Regulations made thereunder, the following staff of the Medical Officer of Health's Department has been employed during the year.

	Males	Females
*Chief sanitary inspector	1	—
*Deputy chief sanitary inspector	1	—
*Prosecuting sanitary inspectors	10	—
*District sanitary inspectors	36	—
*Notice servers	3	—
¹ Food inspectors... ..	11	—
*Inspectors under the Food and Drugs, etc., Acts ...	3	1
* „ of cowsheds and milkshops	2	—
* „ under the Shops Acts	2	1
* „ „ Factories and Workshops Acts ...	4	—
(These inspectors are also appointed under the Shops Acts.)		
² Smoke inspectors	3	—
³ Inspectors of Common Lodging Houses and Houses let in Lodgings	16	—
*Inspector of canal boats	1	—
³ Ambulance and disinfecting inspectors	13	—
Motor ambulance drivers	11	—
Rat catchers, &c.	11	—
Men engaged stripping walls and spraying infected houses, limewashing middensteads, etc. ...	28	—
Chief clerk	1	—
Clerical staff (permanent)	32	—
„ „ (temporary)	1	1
„ „ (health visitors, etc.)	—	9
„ „ (Tuberculosis branch)	3	10
Vaccination Officers	4	—
„ Officers' Clerks	4	—
⁴ Health visitors, school nurses, etc. (permanent) ...	—	86
⁴ „ „ „ „ (temporary) ...	—	17

	Males	Females
⁵ Inspectors under the Midwives Act	—	3
⁶ Ophthalmia Neonatorum nurses	—	2
Superintendent, health visitors and assistants at Infant Milk Centres (permanent)	1	13
Temporary assistants and cleaners at Infant Milk Centres	3	30
⁷ Nurses at Tuberculosis Institutes	—	7
Caretakers at Tuberculosis Institutes	2	—
„ Ford Street Mortuary	—	1
„ City Laboratories	1	—
Cleaners at City Laboratories	—	6
Staff at Seamen's Dispensary... ..	4	1
Women engaged cleansing verminous children ...	—	5

Day Nurseries, Maternity Home and Clinics.

Matrons	—	8
Deputy-matrons	—	8
Nurses and probationers	—	51
Domestic staff (including gardeners and cleaners)...	3	70
Seamstresses	—	3
Kindergarten mistress	—	1
		—
Total number of staff	215	334
		—

In every case officers are selected for these positions whose previous training and occupation have been such as to fit them for the special duties they are called upon to discharge. Those marked * are required to hold a certificate affording evidence of adequate sanitary instruction. ¹Have special training in each branch of the work, i.e., butchers, fishmongers, fruiterers, etc., are also certified. ²Hold Marine Engineer's First Class Certificates. ³All hold the Certificate of the Liverpool University School of Hygiene, the Royal Sanitary Institute or an equivalent thereto. ⁴Fully-trained and Certificated nurses or other special qualifications. (The certificates usually held by the Health Visitors' Staff, in addition to the certificate of training as a nurse, are those of the Central Midwives' Board, the Liverpool University School of Hygiene, and either the Royal Sanitary Institute

or the Sanitary Inspectors' Examination Board, or both these certificates). ⁵ Registered midwives with special qualifying certificates. ⁶ Fully-trained nurses with special training in Ophthalmia Neonatorum. ⁷ Fully-trained nurses.

COMPLAINTS OF NUISANCES.

The district sanitary inspector visits, at the earliest possible moment, all premises where a nuisance is complained of, and on his report an informal notice is served upon the person responsible for the nuisance. If the informal notice is not complied with the matter is referred to the prosecuting inspector, upon whom is placed the responsibility of seeing that the nuisance is abated.

The number of occasions upon which the advice and assistance of the health department has been sought has decreased during the year. These applications fluctuate year by year; in 1910 they were 9,354; in 1920, 18,730; in 1925, 19,075; in 1926, 20,514; in 1927, 20,811; in 1928, 22,652; in 1929, 23,172; and in 1930, 21,478. As in former years, complaints in many cases were made to the department only after repeated requests addressed to the persons causing or allowing the nuisance, or to the owners or agents of property, had been ignored. A great deal of the time of the inspectors was taken up by these special examinations.

Requests to examine important public buildings and offices, as well as highly rented dwelling-houses, are numerous, and the application of the smoke test has in many cases brought to light defects in the drainage system.

During the year 29,420 nuisances were discovered as the result of complaints. Preliminary notices were served either on the owners or occupiers to remedy 25,358 nuisances. The remaining 4,062 nuisances came within the province of other departments, and were referred to those departments to be dealt with.

HOUSE-TO-HOUSE INSPECTION.

One of the most important duties placed upon Sanitary Authorities is that of house-to-house inspection. The Public Health Act provides that this should be done systematically, and the importance of the work is indicated by the extent to which house-to-house inspection is done within the city.

The value of the work is also recognised by owners of property who prefer to receive all notices at the same time, thus avoiding the unnecessary expenditure which would result if the notices were served at different periods.

In the course of house-to-house inspection, 71,097 nuisances were discovered, to remedy which preliminary notices were served on either the owner or the occupier. A number of defects was also referred to other departments.

On re-inspection, the number of nuisances found not abated was 25,732, and statutory notices were served to remedy them. These were again re-inspected by the district inspectors, and those found not abated were referred to the prosecuting inspectors for further action.

The number of nuisances found by the district sanitary inspectors is shown in the following table, together with the character of the proceedings taken by the prosecuting sanitary inspectors to abate the nuisances :—

Number of complaints made by inhabitants...	...	...	21,478
„ nuisances discovered on above complaints	...	...	29,420
„ „ „ on house-to-house inspection	...	...	71,097
Total nuisances	...	...	100,517
„ visits by district sanitary inspectors to	...	...	...
„ re-inspect above nuisances...	...	...	55,883
„ notices issued (owners)	...	...	64,598
„ „ „ (occupiers)	...	...	278
Total notices	...	...	64,876
„ visits to premises under observation	...	...	11,626
„ incidental calls	...	...	35,958
„ visits made by prosecuting inspectors to	...	...	...
„ re-inspect nuisances	...	...	74,419
„ notes sent to comply with notices	..	...	5,341
„ informations laid	...	...	275
„ magistrates' orders	...	...	131
„ fined	...	...	14
„ acquitted or withdrawn	...	...	130

All nuisances were subsequently found abated.

For visitations in house-to-house inspection see page 190.

OFFENSIVE TRADES.

The following offensive trades are carried on in the city: bone boilers, dripping factories, fat and tallow melters, fellmongers, fertilizer works, fish oil works, gut scrapers, ham cooking and potted meat works, hide and skin works, lard refiners, paint and resin works, palm oil works, soap boilers, tanneries, tar and naphtha works, and tripe boilers.

When permission is granted to carry on an offensive trade, conditions are imposed requiring that the premises be put in order to the satisfaction of the City Engineer, Building Surveyor and Medical Officer of Health, that no public or private nuisances be caused, and that the business be discontinued whenever the Council shall so require.

The number of inspections of premises where offensive trades are carried on was 1,237.

FACTORY AND WORKSHOP ACT, 1901.

FACTORIES, WORKSHOPS, AND WORKPLACES.

All factories, workshops and workplaces are systematically visited by four inspectors appointed under the Act, the various premises being grouped in districts so as to secure the maximum number of visits in the minimum time.

Total number of factories	...	...	...	...	...	2,447
„ workshops	...	...	...	...	...	3,548
„ workplaces	...	...	...	...	...	354
„ visits to factories (including factory bakehouses)	...	...	...	...	...	5,408
„ visits to workshops (excluding work- shop bakehouses)	...	...	...	...	...	6,497

BAKEHOUSES.

During the past 30 years there has been a gradual but marked decline in the use of underground bakehouses, and since the passing of the

Factory and Workshop Act, 1901, 328 underground bakehouses have been closed.

Many causes have led to the closing of underground bakehouses, but the main cause has been due to the retirement of the small master baker, the merging of smaller businesses into larger firms, business competition of larger firms, and the centralisation of baking in well equipped up-to-date factories, provided with modern baking appliances. In a few instances, bakehouses have been closed owing to the premises having been acquired and used for other purposes.

During the year 3,710 visits were paid to bakehouses.

Number of bakehouses on register, 31st December	585
---	-----	-----

„ special visits to bakehouses on complaints ...	...	76
„ ordinary visits to bakehouses ...	...	3,520
„ re-inspections of incorrect premises ...	...	114

Total visits	3,710
------------------	-----	-------

Number of occasions on which bakehouses were found					
incorrect ...	...	...	...	...	96
„ sanitary defects found ...	...	...	...	...	125
„ notices issued ...	...	...	...	...	114

The above notices were complied with by the owners or occupiers.

HOMEWORK.

In accordance with the provisions of the Act, outworkers returns are received twice yearly, and the premises referred to in the returns are visited by the district sanitary staff to ascertain (a) that the sanitary condition of the premises is satisfactory, and (b) to ascertain if the premises are used as “workshop” or “domestic workshop.” The following statement shows the work undertaken during the year, viz. :—

Number of outworkers' returns received ...	...	251
„ visits to premises... ..	...	179
„ premises incorrect ...	...	Nil.

RESTAURANT KITCHENS.

All kitchens in connection with cafés and restaurants are systematically visited, particular attention being paid to the cleanliness of the premises and of the workers employed in the kitchen.

Total number of visits during the year	...	...	...	1,808
Number found incorrect	...	...	...	93

INSPECTION OF STABLES AND REMOVAL OF MANURE.

Stables within the city are systematically visited by two inspectors, a great portion of whose time is devoted to the work, constant attention being paid to the frequent removal of the manure and to general sanitation.

Leaflets are served on the occupiers of stables intimating the grave danger to public health which may arise from flies, and the necessity to adopt all possible precautions and attack their breeding places. The co-operation of the occupiers of all stables is asked, in order that the means adopted by the Health Committee for the extermination of flies may be successful, and as a result, in a large number of cases, middensteads have been dispensed with, the manure being removed daily by the City Engineer's Department.

The total number of visits to stables during the year was 8,996.

Middensteads in connection with stables are systematically sprayed with lime to check the breeding places of flies, and the number thus dealt with during the year was 18,034.

Having regard to the increased use of motors it was anticipated that the number of stables in the city would decrease. During the year all the premises formerly occupied as stables have been re-visited, and the following figures indicate the position at the end of the years 1921 and 1930 :—

	1921.	1930.
Number of stables existing and in use	2,078	1,417
„ „ unoccupied and disused...	1,478	1,531
„ horses	9,940	7,220
„ middensteads	1,302	930

It will be observed from the figures that there is a marked decrease in the number of stables, horses and middensteads, but as 1,531 stable premises have not been entirely abolished, and might be again used, they are also kept under systematic visitation.

SHOPS ACTS, 1912-1930.

In accordance with the provisions of the Shops Acts, a register of all shops within the city is kept up to date by systematic visitation. The Health Committee have made 15 half-holiday orders, and nine closing orders under the Act, and day and night visits are made to see that the provisions of these orders are carried out.

With regard to the half-holiday orders, the majority of the shops are closed at 1.0 p.m. on Wednesday.

The shops inspectors, in addition to their duties under the above Acts are also concerned in the provision of sanitary conveniences in shops and the carrying out of that portion of the Public Health (Meat) Regulations which have reference to the sanitary condition of premises in which meat is sold or exposed for sale. They are also responsible for seeing that the shops are provided with suitable receptacles for trade refuse.

The officers of the Health Committee have received valuable assistance from the city police in carrying out the provisions of the Shops Acts and Orders made thereunder.

The female inspector, in addition to her duties under the Shops Acts, has also carried out the provisions of the order made by the Ministry of Health (Circular 325) with reference to "prohibition of the employment of women after childbirth," and in this connection 947 visits have been made to factories and workshops within the city. In each case, the female overseer was interviewed and the requirements of the order explained and, as a result of the visit and explanation, it may be anticipated that every precaution will be taken to see that the provisions of the order are carried out.

During the year complaints were received mainly in regard to the contravention of the Half-Holiday Order, with the following results:—

Number of complaints	...	...	...	...	...	337
„ visits by day	...	...	...	...	...	10,763
„ visits after 6 p.m.	...	...	...	...	...	250,299
„ informations	...	...	...	...	...	204
„ fined	...	...	...	...	...	110
„ withdrawn	...	...	...	...	...	5
„ discharged cautioned	...	...	...	...	...	89
Amount of fines and costs	...	...	...	...	...	£51 0 6

In addition to the above, it was found necessary to caution persons by letter for minor infringements of the Acts.

LIVERPOOL CORPORATION ACT, 1927.

EMPLOYMENT AGENCIES.

The question of Employment Agencies has been dealt with by the Sanitary Department since November, 1927, and prior to this date the work was carried out by officials in the Town Clerk's Department.

It will be noted that it is not necessary under the Act for a person to notify the Local Authority prior to the commencement of the business of an Employment Agency, the responsibility being placed upon the Local Authority to find the premises where such business is carried on.

The method adopted is for the Sanitary Inspectors to make a full return of all premises where there is any indication of an Employment Agency being conducted, and to inform the occupier that a licence is necessary, and to leave a form of application.

An office record is also kept of all Employment Agencies, giving particulars of the premises, occupiers, and nature of business. The register indicates that at the present time there are 51 Employment Agencies in the city, all of which have received the necessary licence from the Local Authority.

CELLARS.

In view of the serious shortage of housing accommodation there is a tendency to re-occupy cellars as separate dwellings, many of which have

been closed for several years; an annual inspection is therefore made of all cellars, and if any are found re-occupied, the usual notice is served.

EXAMINATION OF CELLARS AND CELLAR DWELLINGS.

Number of inspections of street cellars	...	...	...	23,992
„ found illegally occupied	...	...	...	187
„ of notices issued to cease letting or occupying..				374

The present position in regard to cellars is as follows:—

Number at present unoccupied	...	...	...	533
Number occupied as kitchens or wash-cellars	...			480
Number occupied as kitchens and separately let				
with the front parlour	...	...	...	115
Number permanently closed	...	...	...	360
Number demolished	...	...	...	19
*Number of cellars, occupied as separate dwellings,				
31st December, 1930	...	...	...	107

DEPARTMENTAL REFERENCES.

The co-operation which the Public Health Department receives from other departments of the Corporation is fully appreciated, and as a result many sanitary defects are brought to notice, and at once dealt with by the Sanitary Department. Were it not for this early intimation it is possible that defects might remain undiscovered until such time as the district inspector visits the premises in the course of house-to-house inspection.

REFERENCES FROM OTHER DEPARTMENTS.

From City Engineer...	...	...	...	...	6,561
„ Water Engineer	...	...	...	...	3,156
„ Lodging-house inspectors	...	...	...	...	11,620
„ Education Department (suspected infection in school children)	...	...	...	...	5,282

* The number of cellars occupied as separate dwellings at 31 Dec., 1912, was 1,614.

REFERENCES TO OTHER DEPARTMENTS.

The officers of the Health Department co-operate with other departments by referring to them matters which are outside the scope of the Health Department, such as waste of water, choked gullies, defective street and passage pavements, dangerous walls, floors and roofs.

To City Engineer	...	...	...	...	...	...	8,691
,, Building Surveyor	...	...	...	...	...	...	6,935
,, Water Engineer	...	...	...	...	..	...	9,013
,, Education Department (school children suffering from infectious diseases)	...	...	...	..	...	...	21,015
,, other departments	...	...	...	...	...	...	672

RATS AND MICE (DESTRUCTION) ACT, 1919.

Active measures have been taken within the city throughout the year to ensure the destruction of as many rats as possible, and also to bring to public notice the necessity for reducing the rat population to the lowest possible dimensions. There are special reasons for a constant campaign against rats in Liverpool. The first is the possibility of the spread of plague, a disease which from time to time is brought into the port on ships arriving from foreign countries. The destruction and damage to property, foodstuffs, etc., by means of rats further justifies the stringent measures which are constantly being taken against these vermin. In this connection the co-operation of warehouse owners and occupiers of rat-infested premises is always sought and obtained.

Ten rat-catchers are constantly engaged in the extermination of rats, four being engaged in that connection in warehouses, which are visited every three months, in accordance with arrangements made with the Ministry of Health. For the purpose of systematic inspection the city has been divided into six districts, and the remaining six rat-catchers systematically visit cafés, fried fish shops, grocery shops, foodstores, bread shops, and all other places where rats are likely to be found. When a rat-catcher visits rat-infested premises, he operates for a few days, and by so doing indicates to the occupier methods whereby he can help in the extermination of rats. In the event of the occupier failing

to take action a notice is served under the Rats and Mice (Destruction) Act, 1919.

The assistance given by the rat-catchers is appreciated by occupiers and owners of premises, who are always willing and anxious to forward the extermination of rats.

To save the time of the rat-catchers and to provide for the destruction of the rats as quickly as possible, each rat-catcher is met at a certain place every morning, the rats being collected and labelled and a proportion taken the same day for examination by the City Bacteriologist.

The City Engineer's Department has also done valuable work in catching rats in public sewers, the rats being collected and dealt with in the same way

Copies of the memorandum prepared by the Medical Officer of Health as to the destruction of rats have been widely circulated, and postcards are left with warehouse keepers so that information may be at once obtained in the event of any unusual mortality amongst rats.

An office record is kept indicating the number of complaints received and a register of all premises visited, whilst the rat-catcher enters in his daily report book full details of each day's work.

It has not been found necessary to take any proceedings for non-compliance with the provisions of the Act.

To ascertain from time to time the condition of the city in regard to rat infestation a weekly return is obtained from all the officers employed by the health department, who in the ordinary course of their daily duties visit different types of premises, and at the same time make inquiries in regard to the presence of rats. In the event of an intimation of the presence of rats a visit is at once paid by the rat-catcher to the premises.

NUMBER AND SPECIES OF RATS EXAMINED OR DESTROYED IN THE CITY AND PORT OF LIVERPOOL,
DURING THE YEAR 1930.

1930.	Examined (City).		Destroyed (City).		Examined (Port).		Destroyed (Port).		Total Caught.
	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.	City and Port.
									Black and Brown.
January ...	45	315	188	946	322	7	343	—	2,166
February	45	248	139	776	313	17	126	13	1,677
March ...	36	286	179	963	308	9	336	4	2,121
April ...	24	274	116	964	260	10	106	2	1,756
May ...	38	338	207	1,462	249	22	158	8	2,482
June ...	20	255	125	874	244	14	138	2	1,672
July ...	24	300	93	1,003	230	19	145	—	1,814
August ...	20	217	122	750	201	22	207	5	1,544
September	27	311	122	954	248	15	173	—	1,850
October ...	63	297	210	1,023	343	88	142	4	2,170
November	22	285	94	936	288	45	205	—	1,875
December	29	217	72	845	192	38	102	4	1,449
TOTAL	393	3,343	1,667	11,496	3,198	306	2,181	42	22,626

NUMBER AND SPECIES OF RATS CAUGHT, IN THE CITY AND PORT OF LIVERPOOL,
DURING THE YEAR 1930.

1930.	Warehouses.		Sewers.		Other Places.		Total.		Ships.		Quays.		Other Sources.		Total.	
	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.	Black.	Brown.
January ...	179	293	—	498	54	470	233	1,261	540	—	119	5	6	2	665	7
February ...	148	287	—	433	36	304	184	1,024	287	—	127	25	25	5	439	30
March ...	124	316	—	432	91	501	215	1,249	530	3	82	7	32	3	644	13
April ...	122	385	—	469	18	384	140	1,238	232	—	118	11	16	1	366	12
May ...	213	362	—	515	32	923	245	1,800	260	—	126	27	21	3	407	30
June ...	100	277	—	474	45	378	145	1,129	275	—	93	15	14	1	382	16
July ...	102	228	—	591	15	484	117	1,303	295	—	65	18	15	1	375	19
August ...	85	201	—	390	57	376	142	967	282	1	78	18	48	8	408	27
September ...	53	207	—	567	96	491	149	1,265	240	—	101	8	80	7	421	15
October ...	201	214	—	552	72	554	273	1,320	267	1	124	16	94	75	485	92
November ...	68	160	—	518	48	543	116	1,221	344	4	102	17	47	24	493	45
December ...	77	123	—	392	24	547	101	1,062	190	—	71	31	33	11	294	42
TOTAL ...	1,472	3,053	—	5,831	588	5,955	2,060	14,839	3,742	9	1,206	198	431	141	5,379	348

Administration of the Factory and Workshop Act, 1901, in
connection with
FACTORIES, WORKSHOPS, WORKPLACES & HOMEWORK

The following Tables are prepared by request of the Secretary of State :—

1.—Inspection of Factories Workshops and Workplaces.

Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances.

Premises.	Number of		
	Inspections.	Written Notices	Occupiers Prosecuted.
<i>Factories</i> (Including Factory Laundries.)	5,408	226	—
<i>Workshops</i> (Including Workshop Laundries).	10,207	570	—
<i>Workplaces</i> (Other than Outworkers' premises)	1,808	7	—
TOTAL	17,423	803	—

2.—Defects Found in Factories, Workshops and Workplaces.

Particulars.	Number of Defects.			Number of offences in respect to which Prosecutions were instituted.
	Found.	Remedied.	Referred to H.M. Inspector.	
<i>Nuisances under the Public Health Acts :*</i>				
Want of cleanliness	270	270	—	—
Want of ventilation	1	1	—	—
Overcrowding	—	—	—	—
Want of drainage of floors	—	—	—	—
Other nuisances	495	495	—	—
Sanitary accommodation—				
Insufficient	13	13	—	—
Unsuitable or defective	169	169	—	—
Not separate for sexes	7	7	—	—
<i>Offences under the Factory and Workshop Acts :—</i>				
Illegal occupation of underground bakehouse (s. 101)... ..	—	—	—	—
Other offences	—	—	8	—
(Excluding offences relating to outwork and offences under the sections mentioned in the Schedule to the Ministry of Health (Factories and Workshops Transfer of Powers) Order, 1921)				
TOTAL	955	955	8	—

*Including those specified in sections 2, 3, 7 and 8 of the Factory and Workshop Act, 1901, as remediable under the Public Health Acts.

There were no cases of outwork in unwholesome premises (sec. 108) during the year.

AMBULANCE AND DISINFECTING STAFF.

There were 9,624 cases of infectious disease removed to hospital by officers of the ambulance staff during the year.

The number of rooms disinfected was 51,447, and 4,131 library books were also disinfected.

The number of articles (bedding, clothing, etc.) disinfected at the disinfecting apparatus was 63,669, in addition to 49,163 other articles.

Two disinfecting stations have been established in the city for a number of years, each well equipped to deal with large quantities of material. The north end of the city is served by the Charters Street station and the south end by the Smithdown Road station. When necessary the disinfecting apparatus attached to each of the city hospitals may be utilised.

DISINFECTION OF TRANSMIGRANTS.

Typhus fever, which is a vermin-transmitted disease, has caused the Ministry of Health and also the American Health Authorities to view the arrival of emigrants and transmigrants from Central Europe en route to America with some anxiety.

The emigration houses where these people reside, pending the sailing of the vessel, are kept under strict supervision by the lodging-house inspectors, being visited daily, and all cases of infectious illness are promptly reported to the shipping company's doctor and the local health authority. The bedding is also frequently examined and attention is given to the occupation of the rooms to prevent overcrowding and to ensure cleanliness.

MORTUARIES.

The Mortuary at the Prince's Dock is for the reception of the bodies of persons who have been drowned, killed or found dead, and upon which the coroner desires to hold inquests. Bodies are taken to this mortuary by the police, and when it is necessary to make post-mortem examinations. During the year the number of bodies removed to Prince's Dock Mortuary was:—From the river, 7, and from the city, 206.

The method of transport of the bodies of persons killed, or found dead in the street, has been adequately provided for, the Health Committee having arranged, through the Chief Constable, with a firm of undertakers to supply a hearse on short notice, together with a shell coffin. This arrangement has proved satisfactory.

The district mortuaries are seldom used. For the convenience of juries, as well as for other reasons, it is preferable that bodies should be conveyed to the central mortuaries. The Ford Street mortuary is provided for the reception of bodies which cannot be kept at the homes in which death had taken place, without possible injury to the health of the inmates, and is also used for the reception of stillbirths. The number of bodies received during the year was 338.

CREMATORIUM.

The Crematorium, which is situated in Anfield Cemetery, was opened by the Liverpool Crematorium Company in the year 1896. When the Corporation became the Burial Authority for the city, the administration was taken over in October, 1908, by the Crematorium Sub-Committee.

Cremation is not a modern innovation; it has been used as a method of disposal of the dead since very early times.

While preserving the sanctity at present associated with earth burial, cremation fulfils nature's laws more quickly by reducing the body to its natural state in the space of a few hours, whereas in earth burial the process takes many years to accomplish.

The ever-increasing demand for new burial grounds and the heavy expenditure which their provision and upkeep demands are problems which could best be solved by the establishment of a crematorium in every large centre of population, and by the general adoption of cremation.

That cremation is steadily becoming more popular is shown by the fact that in 1885 there was one crematorium, whereas now there are 19 crematoria in this country; the total number of cremations during 1929 being 4,353.

As regards cost, cremation compares favourably with ordinary burial, and if it were more generally adopted, the cost could be much reduced.

It may be regarded as an adequate safeguard against the remote possibility of a person being buried alive.

The Crematorium is attached to a Chapel, beneath which is a spacious columbarium, or chamber, fitted with small niches, used as the resting places for urns holding the ashes of the dead. The niches are closed with marble slabs bearing suitable inscriptions. In the Crematorium grounds is situated the Garden of Remembrance, which was opened on July 28th, 1927. This plot is specially reserved for the depositing of ashes, where this method of disposal is desired by the relatives. Disposal of ashes in this way involves no extra charge.

The number of cremations which have taken place at the Liverpool Crematorium since the opening is shown in the following table :—

1896.....	2	1915.....	53
1897.....	10	1916.....	58
1898.....	27	1917.....	62
1899.....	23	1918.....	70
1900.....	40	1919.....	88
1901.....	40	1920.....	70
1902.....	54	1921.....	74
1903.....	35	1922.....	74
1904.....	40	1923.....	62
1905.....	35	1924.....	74
1906.....	46	1925.....	75
1907.....	34	1926.....	96
1908.....	32	1927.....	101
1909.....	46	1928.....	103
1910.....	37	1929.....	103
1911.....	50	1930.....	160
1912.....	52		
1913.....	66		
1914.....	49		
			<hr/>
			2,041
			<hr/>

SMOKE NUISANCES.

Proceedings for the abatement of nuisances caused by the emission of excessive smoke from factories, steamers, etc., were taken under the following act :—

THE LIVERPOOL CORPORATION ACT, 1921.—SECTIONS 472 AND 473.

REPORTS RE EXCESSIVE SMOKE.

Number of reports <i>re</i> factories	...	...	...	22
„ „ <i>re</i> steamers in dock...	...	...	...	9
„ „ <i>re</i> steamers in river...	...	...	...	144

Total	...	...	...	175

Sixty-two steamship owners were communicated with, or written to, in respect of nuisances caused by the emission of excessive smoke, and 1,634 manufacturers and 149 steamship owners cautioned.

INFORMATIONS FOR EXCESSIVE SMOKE.

Informations against occupiers of factories	...	...	22
„ „ owners of steamers in river	...	...	86
„ „ „ „ in dock	...	...	5

Total	...	...	113

			Acquitted or withdrawn.	Fined.	Amount of Fines.
Factories	...	...	0	22	£10 9 0
Steamers	...	...	5	86	£64 14 0
			---	---	---
			5	108	£75 3 0

SMOKE INSPECTION.

The total number of complaints received of nuisances caused by smoke from defective state of flues, low chimneys, etc., was 51, and the visits relating to same numbered 762.

Chimneys raised in consequence of complaints received..	14
Flues altered or repaired	15
Complaints under observation	18
Complaints referred to other departments	2
Complaints not sustained	2

Total	51

SMOKE ABATEMENT.

INDUSTRIAL SMOKE.—Continuous observations are kept on all the principal chimneys in the city with regard to the emission of excessive smoke, and as the figures shew, there has been a slight increase on the previous year, both with regard to the number of reports of excessive smoke and the number of convictions.

Practically all smoke nuisances can be attributed to the following two causes, viz. :—

(a) Careless stoking of the furnaces.

(b) Forcing of the furnaces beyond their working capacity.

The smaller factories continue to use the old method of hand stoking, and as these are much the greater in number, particular observations have to be taken and visits made, in order that the necessary care in the stoking and tending of the furnaces shall not relax.

Most of the large factories have been fitted with new modern steam generators, which are mechanically supplied with fuel and air, and under normal conditions, smoke is reduced to a minimum. All boilers have a maximum output, and when the load is increased beyond that output, forcing of furnaces has to be resorted to, and nuisance is caused. In a number of cases this has been pointed out to the management, and where no attention has been paid, prosecution has taken place.

The remedy for this forcing is either to increase the boiler plant, or to reduce the load by substituting electrical power from the Corporation supplies. In several factories, the load has been reduced in this manner, with satisfactory results. During the year, in several factories the furnaces of the boilers have been fitted with mechanical combustion control appliances. With proper attention these appliances have been very satisfactory, smoke nuisance being reduced to a minimum. Lack of attention, however, causes considerable nuisance and necessitates continuous observations of these factories.

Small vertical type boilers are in use to a considerable extent, and when coal is used as fuel a certain amount of nuisance is caused. This type of boiler is constructed for the use of coke as fuel, and when

coke is used, there is no further cause for complaint. Vertical boilers are poor generators from an efficiency point of view, and if manufacturers have sufficient space, Cornish, Lancashire or tubular boilers are recommended.

PULVERIZED FUEL.—We still have only two boiler plants in the city working with this method of firing. The difficulty previously experienced by the caking of the fuel and the choking of the burner through the moisture content in the fuel, has now been overcome. An improved pulverizer has been fitted, through which a portion of the hot flue gases is passed during the pulverizing process. This produces a thoroughly dry powder, similar in fineness to flour, which passes through the burner freely, ignites easily and proves more satisfactory.

OIL FUEL.—This year there has been no increase in the number of boiler plants burning crude oil as fuel, but those already installed are giving every satisfaction and require very little attention while in operation. Although the cost of running plants with oil fuel is greater than that with coal, a great benefit is derived by the cleanliness of the plant and the convenience with which the fuel can be stored.

LOW CHIMNEYS.—During the year 14 chimneys were raised in consequence of complaints received. It is often found that products of combustion, other than smoke, emitted from a chimney, cause a nuisance to the surrounding inhabitants. A change of fuel will sometimes remedy this, but where this was not practicable, notices were sent to the occupier to raise the chimney, and though this did not alter the emission of the flue gases, it carried them into the atmosphere, above adjacent premises.

STEAMERS IN DOCK AND ON THE RIVER.—Nuisances caused by excessive smoke emitted from steamers has shown no signs of abating. The prevailing westerly winds carry the smoke from these vessels over the city. Special attention has been given to this class of nuisance, and observations will be continued.

During the year there were 153 reports of excessive smoke from steamers in dock and on the river, 62 of which related to foreign-going

vessels. No proceedings were taken with regard to this class of vessel, but the owners were communicated with in respect of the nuisance. The number of summonses issued in regard to other vessels was 91, there being 86 convictions and 5 being withdrawn.

DOMESTIC SMOKE.—There is no legislation to deal with this nuisance. Individually the amount of smoke emitted is small. Collectively it is heavy, almost as heavy as that of industrial chimneys, the deposit being a greasy soot which adheres to and disfigures buildings and premises, and causes clothing and hangings to become filthy. The use of gas and electricity for heating and cooking are recommended, also the use of smokeless fuels. There are three substances sold locally under the designation of smokeless fuels, viz. :—Coalite, Dryco and Ricoal.

The approximate demand for domestic fuel in Liverpool during the winter months is 20,000 tons weekly, but the supply of smokeless fuel is very limited, about 1,400 tons per week, so that at the present time it is impossible to supply an adequate amount of this fuel in order to minimise this nuisance to any considerable extent. During the summer months supplies can be easily obtained, but until the output is considerably increased or a greater number of houses are converted for gas or electric heating, progress in this direction can only be slow.

THE FIRING OF DOMESTIC CHIMNEY FLUES.—From observation it has been found that the wilful or inadvertent firing of chimney flues tends considerably toward the pollution of the atmosphere. This year the number of convictions for this form of offence was 2,520, as against 2,320 the previous year, which shews an increase of 200 convictions. It is deplorable to think that certain of our population wilfully fire their chimney flues or allow them to become so dirty that they inadvertently fire and clear themselves, to the detriment of the whole of the surrounding neighbourhood. The Medical Officer of Health wishes to make a special appeal to all householders to assist him in the general cleanliness of the city and purity of the atmosphere, by having their house flues swept and cleaned at least twice per year, where coal is used as fuel in the fireplaces. Prosecutions for this class of offence are carried out by the police, who are doing very estimable work, in assisting in the prevention of atmospheric pollution.

ATMOSPHERIC POLLUTION.

The accompanying tables show the results of the analyses in the two atmospheric pollution gauges in Liverpool. The first, which has been in operation for ten years, is placed in the grounds of the North Tuberculosis Dispensary, Netherfield Road. The second, which is in the grounds of the Carnegie Welfare Centre, Mount Pleasant, came into operation in March, 1929; it is situated in a much less crowded area.

As was anticipated the figures of deposits from the new gauge are much lower than those from the old one. The main figures are:—

	Netherfield Road Gauge.	Carnegie Welfare Centre Gauge.
Total Solids	521·1	303·2
Undissolved matter—		
tarry matter, etc.	5·9	4·1
Other organic matter	93·4	57·8
Mineral matter	203·0	124·7
Total undissolved matter	302·3	186·6
Total dissolved matter	218·8	116·6
Chlorine as Cl.	31·8	26·4
Sulphate as SO ₃	67·9	31·4
Rainfall in inches	38·2	39·7

It will be seen that the figures for the Carnegie Centre gauge are not greatly over half those for the Netherfield Road gauge. The difference is greatest in respect of mineral matter, and it seems probable that a good deal of the matter deposited in the Netherfield Road gauge is road dust, domestic ashes or similar material, and not “smoke,” i.e., substances discharged from chimneys.

It will be seen that at Netherfield Road 203 out of 521 tons, and at the Carnegie Centre 124 out of 303 tons, or about two-fifths of the deposits consist of mineral matter. The remainder is mainly sooty matter derived, in residential districts, mostly from domestic fires consuming coal. Relief is mainly to be sought in the increased use of electricity, of gas, and of smokeless fuels. These particles of suspended matter assist in the production of fogs and diminish to a considerable extent the amount of sunlight received, especially tending to cut off the ultra-violet rays, whose action is of value in the prevention of rickets and other affections.

ATMOSPHERIC POLLUTION, 1930.

(332, Netherfield Road)

RESULTS OF ANALYSES BY THE CITY ANALYST (CALCULATED IN TONS PER SQUARE MILE)

	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.	Totals for 12 months.
Sum Total Solids	41.51	39.96	48.50	54.47	38.15	36.82	36.03	41.74	35.01	51.26	47.02	50.63	521.10
UNDISSOLVED MATTER—													
Tarry Matter and Bitumen	0.56	0.33	0.61	0.54	0.46	0.41	0.43	0.49	0.31	0.46	0.51	0.79	5.90
Other Organic Matter	6.43	8.75	7.32	9.23	7.24	10.66	6.32	7.34	5.76	8.01	7.70	8.62	93.38
Mineral Matter	10.17	19.51	19.69	23.23	18.80	15.12	14.87	15.81	14.02	19.00	16.04	16.74	203.00
Total Undissolved Matter ...	17.16	28.59	27.62	33.00	26.50	26.19	21.62	23.64	20.09	27.47	24.25	26.15	302.28
DISSOLVED MATTER—													
Organic Matter by Ignition	8.90	4.38	8.03	7.16	4.66	3.24	4.80	8.36	4.23	7.93	8.34	10.99	81.02
Mineral Matter	15.45	6.99	12.85	14.31	6.99	7.39	9.61	9.74	10.69	15.86	14.43	13.49	137.80
Total Dissolved Matter	24.35	11.37	20.88	21.47	11.65	10.63	14.41	18.10	14.92	23.79	22.77	24.48	218.82
Acidity as H ₂ SO ₄	1.81	0.04	0.36	0.46	—	—	0.28	0.41	0.48	0.94	0.92	1.90	7.60
Chlorine as Cl	4.00	1.20	2.60	2.19	1.38	1.38	2.65	3.14	1.94	4.67	3.61	3.01	31.77
Ammonia as NH ₃	0.66	0.15	0.33	0.26	0.20	0.23	0.43	0.69	0.33	0.43	0.41	0.38	4.50
Sulphate as SO ₈	6.73	3.57	6.68	7.29	3.70	3.09	4.54	6.35	5.18	6.71	7.09	6.95	67.88
Lime as CaO	1.48	1.89	2.01	2.40	1.33	1.15	0.97	2.09	0.48	2.27	1.39	1.00	18.46
RAINFALL {													
Millimetres ...	116.50	10.46	78.73	77.96	28.58	45.30	94.17	136.50	63.54	111.14	108.84	97.97	969.69
Inches	4.59	0.41	3.10	3.07	1.13	1.78	3.71	5.38	2.50	4.37	4.28	3.84	38.16
Ph. Value	5.0	5.1	4.9	4.7	5.4	5.5	5.0	5.0	4.4	4.2	4.2	3.9	—

ATMOSPHERIC POLLUTION, 1930. (Carnegie Infant Welfare Centre, Cambridge Street)

RESULTS OF ANALYSES BY THE CITY ANALYST (CALCULATED IN TONS PER SQUARE MILE).												
	January	Feb. and March	April	May	June	July	August	Sept.	October	Nov.	Dec.	Total for 12 months
Sum Total Solids.....	25.37	41.08	25.22	23.64	25.73	27.06	32.95	22.98	31.26	26.62	21.27	303.18
UNDISSOLVED MATTER—												
Tarry Matter and Bitumen	0.48	0.90	0.25	0.28	0.33	0.16	0.31	0.31	0.28	0.36	0.43	4.09
Other Organic Matter	3.47	9.00	5.56	5.02	5.23	5.20	5.84	4.82	5.10	4.89	3.65	57.78
Mineral Matter	9.00	18.46	10.10	11.73	12.39	11.32	15.02	9.82	9.77	9.92	7.19	124.72
Total Undissolved Matter	12.95	28.36	15.91	17.03	17.95	16.68	21.17	14.95	15.15	15.17	11.27	186.59
DISSOLVED MATTER—												
Organic Matter by Ignition.....	4.13	3.98	4.31	2.76	3.42	2.96	5.89	3.65	5.76	4.56	4.00	45.42
Mineral Matter	8.29	8.74	5.00	3.85	4.36	7.42	5.89	4.38	10.35	6.89	6.00	71.17
Total Dissolved Matter	12.42	12.72	9.31	6.61	7.78	10.38	11.78	8.03	16.11	11.45	10.00	116.59
Acidity as H ₂ SO ₄	1.22	0.69	0.69	0.10	—	0.59	—	0.61	0.71	1.50	1.79	7.90
Chlorine as Cl.	2.73	2.81	1.61	1.12	0.99	2.60	2.96	1.91	4.31	2.86	2.50	26.40
Ammonia as NH ₃	0.46	0.08	0.08	0.02	0.77	0.06	0.46	0.02	0.03	0.10	0.13	2.21
Sulphate as SO ₃	3.34	3.72	4.44	1.63	1.81	2.58	3.16	2.14	3.16	2.75	2.65	31.38
Lime as CaO	1.35	2.37	1.71	1.15	1.45	0.36	1.48	0.20	1.73	1.71	0.89	14.40
RAINFALL { Millimetres	116.01	77.86	70.25	27.07	47.69	145.66	144.37	71.54	112.79	112.14	97.96	1023.34
{ Inches	4.57	3.07	2.15	1.07	1.88	5.73	5.68	2.82	4.44	4.41	3.86	39.68
P.H. Value	5.2	4.5	4.5	5.2	5.5	4.7	5.5	4.4	4.6	4.0	3.9	—

SPECIAL VISITS.

Number of visits to railway carriages	...	...	...	267
„ „ „ platforms (fish arrivals)	...	...	...	89
„ „ poultry depots	...	...	...	244
„ „ manure depots	...	...	...	131
„ „ marine stores	...	...	...	664
„ „ fried fish shops	...	...	...	2,199

Complaints are occasionally received from passengers directing attention to the dirty condition of railway carriages. These carriages are from time to time inspected, and if they are found in an unclean condition the railway company concerned is informed and the matter receives prompt attention.

The manure depots are situated in close proximity to the north corporation destructor, and visits are made to them to see that the manure which has been received from the stables in the centre of the city is frequently removed so as to avoid the possibility of breeding places for flies.

HOUSE-TO-HOUSE INSPECTION.

The systematic house-to-house visitation by the district male staff is shown in the following table :—

Number of street houses examined	...	...	...	95,389
„ court houses examined	...	...	...	1,850
Total				97,239
Number of apartments examined	...	...	...	502,350
„ houses where nuisances existed	...	...	...	35,869

INFECTED HOUSES.

The following table shows the number of houses visited where notifiable infectious diseases have occurred, with the number of visits to these houses, and to houses where cases of non-notifiable infectious diseases have been reported to the Health department by the Education department :—

Number of street houses whose notifiable diseases occurred	11,993
„ court houses where notifiable diseases occurred	143
„ visits to infected houses (notifiable cases) ...	23,883
„ visits to infected houses (school cases) ...	4,727
„ visits and re-visits to phthisis cases ...	8,134
„ enquiries <i>re</i> suspected smallpox contacts ...	2,220

COURT AND ALLEY EXAMINATIONS.

Number of inspections of courts and alleys ...	17,969
„ „ water closets ...	31,569
„ water closets found dirty, but afterwards cleansed by officers' instructions ...	19,232

PICTUREDROMES.

At the request of the Licensing Justices, officers of the Health Committee systematically visit all picturedromes to see that the means provided for the ventilation of the auditorium is in use, attention also being directed to the condition of the sanitary conveniences, provision of seats for the attendants, the general cleanliness of the premises, and the water supply. A Female Inspector also makes systematic visits to inspect the sanitary conveniences used by females.

During the year 600 night visits were paid, and on each occasion the premises were found to be in a satisfactory condition. A day inspection is also made so that closer attention may be given to the examination of the sanitary conveniences.

In consequence of complaints of the atmosphere of certain cinemas, in November, 1930, a detailed Return of all cinemas in the City, indicating the temperature, ventilation and condition of the atmosphere, was submitted to the Health Committee. In a few instances the fans were found incorrect, but after a further visit had been made everything was found in a satisfactory condition.

SHAVING BRUSHES.

As a precautionary measure in connection with the possible spread of anthrax from shaving brushes, samples of these brushes are purchased from shops in different parts of the city, all of which are submitted to the City Bacteriologist for examination.

Number of shaving brushes submitted during the year ...	43
„ found infected with anthrax	Nil.

COMMON LODGING HOUSES.

At the end of the year 1929 there were on the register (including emigration houses), 129 lodging houses. During the year 1930, 22 houses were given up and removed from the register, and 12 new houses added, leaving, at the end of 1930, 119, providing accommodation for 5,895 lodgers.

Under Part 5 of the Public Health Acts Amendment Act, 1907, Sections 69 to 72 (adopted in 1912), 76 keepers were re-registered and 18 deputy-keepers registered.

INSPECTION OF LODGING HOUSES.

Visits by day	5,278
„ night	169
Visits to houses not on the register	115

No informations have been laid against keepers during the year.

INFECTIOUS DISEASES IN LODGING HOUSES.

Thirteen cases of infectious disease were notified during the year, the necessary disinfection and cleansing of the premises being carried out after each case.

Seventy-five persons living in common lodging houses were notified as suffering from phthisis. In all cases where patients on discharge from a sanatorium return to these houses, instructions are given regarding the isolation of the patient, and the precautions to be taken to prevent the spread of infection.

Enquiries were also made regarding one case of trachoma and nine cases of conjunctivitis occurring amongst transmigrants passing through Liverpool, the majority of which were notified from various ports in England where they landed from the continent. Prior to sailing for the American continent, persons affected with these diseases are re-examined by the doctors attached to the various shipping companies.

Those rejected are either placed under treatment in the care of the shipping companies or are taken charge of by the Jewish Board of Guardians until they are certified fit to sail, and should they not recover within a reasonable time they are returned home. During this period the patients are kept under observation by the department and their ultimate destination ascertained, as shewn in the following table :—

TRACHOMA AND CONJUNCTIVITIS.

Cases under treatment 1st January, 1930	...	...	...	0
,, notified from Hull or other ports	..	...	...	9
,, discovered in Liverpool	...	...	...	1
				<hr/> 10 <hr/>
Number of above who sailed for U.S. of America or Canada				9
,, returned home	...	...	...	1
,, diverted to other ports	...	...	...	0
				<hr/> 10 <hr/>

There are 14 houses providing accommodation for 521 women lodgers. For details of women's lodging houses see reports for the years 1909 and 1914.

SEAMEN'S LICENSED LODGING HOUSES.

The Corporation have made byelaws, with the sanction of the President of the Board of Trade, for the licensing of Seamen's lodging

houses, under the Merchant Shipping (Fishing Boats) Act, 1883, Section 48, but there is only one lodging house licensed under these byelaws.

INSPECTION OF HOUSES LET IN LODGINGS.

Houses on register, December 31st, 1929	...	...	15,662
„ removed from register during 1930	...	.	3
„ added to register during 1930	...	...	200
„ on register, December 31st, 1930	...	...	15,859

DAY VISITS :—

Day visits	...	...	...	...	...	...	130,955
Rooms measured	...	...	...	...	...	...	1,147

OVERCROWDING :—

Infringements found	...	...	...	...	...	595
Re-inspections	...	...	...	...	...	2,120
Infringements abated	...	...	...	...	...	377

NON-SEPARATION OF SEXES :—

Infringements found	...	...	...	...	...	58
Re-inspections	...	...	...	...	...	75
Infringements abated	...	...	...	...	...	31
Floors found dirty	...	...	...	...	...	524
„ „ cleansed on revisit	...	...	...	...	...	524
Stairs and passages dirty	...	...	...	...	...	215
„ „ „ found cleansed on revisit	...	...	...	...	...	215

No informations were laid during the year.

CLEANSING OF WALLS AND CEILINGS.

The following notices were served on landlords of houses let in lodgings during the year under Section 7 of the 1911 byelaws :—

Preliminary notices to cleanse walls and ceilings	...	31
Statutory „ „ „ „	...	4
Houses cleansed	...	35
Rooms „	...	198

REFERENCES FROM OTHER DEPARTMENTS.

Received from Sanitary Department	...	...	...	179
„ by anonymous complaints	...	...	...	38
„ by tenants'	„	...	...	43
„ by lodgers'	„	...	...	59
„ by other sources...	...	...	...	26

REFERENCES TO OTHER DEPARTMENTS.

Referred to Sanitary Department	...	...	...	11,852
„ „ (Special cases)	...	...	...	746
„ City Engineer	...	...	...	101
„ Water „	...	...	...	2,063
„ City Surveyor	...	...	...	1,459
„ Health Visitors and other departments	...	...	...	8

NIGHT VISITS.

OVERCROWDING :

Houses visited between 11-45 p.m. and 2 a.m.	...	...	3,238
Cases of overcrowding found	...	...	671
Visits to instruct how to arrange so as to abate over-crowding	...	...	671
Re-inspection after instructions given	...	...	670
Cases of overcrowding abated on re-inspection...	...	...	300

DETAILS OF OVERCROWDING :

Overcrowding by families occupying 1 room	...	...	168
„ „ „ 2 rooms	...	...	329
„ „ „ 3 or more rooms..	...	...	174

NON-SEPARATION OF SEXES :

Cases found	...	...	86
Visits to instruct as to separation of the sexes...	...	...	86
Re-inspection after instruction given	...	...	60
Cases abated on re-inspection	...	...	46

**CANAL BOATS ACTS, 1877 and 1884, and
CANAL BOATS ORDERS, 1878, 1922 and 1925.**

The Leeds and Liverpool Canal Company are the proprietors of the only canal having direct communication with Liverpool, and the length of the waterway within the city, exclusive of the locks which lead to the docks, is about three miles.

The number of inspections of canal boats during the year was 2,868, and the condition of the boats and their occupants as regards matters dealt with in the acts and regulations is indicated in the following table :—

Boats on register 1st January, 1930	...	...	...	352
New boats registered	...	...	...	74
Boats removed from register	...	...	...	41
Boats on register, 31st December, 1930	...	...	...	385

One copy of a registration certificate was issued owing to the original certificate being worn out.

Contraventions occurred on 41 boats, of which number 10 were registered by other authorities.

NATURE OF CONTRAVENTIONS :—

Unregistered boats used as dwellings	...	...	...	4
No certificate on board or certificate not legible	...	...	...	4
Registered lettering, etc., not legible	...	..	...	1
Leaky decks	...	...	...	8
Defective stoves or stove-pipes	...	...	...	13
Cabins requiring re-painting	...	...	...	3
Defective water-tank	...	...	...	1
Incorrect marking of boats	...	...	...	9
				43

Written notices were issued to owners in 27 instances.

Verbal notices were given to owners in 14 instances.

All these notices have been complied with. No informations were laid during the year against owners or masters for infringement of the acts or regulations. No case of infectious sickness was reported as having occurred during the year on any canal boat visiting the district. Fifteen motor-propelled boats and fifty-eight steam-propelled boats are registered by this Authority.

On May 1st, 1923, the Ministry of Health, under section 10 of the Canal Boats Act, 1884, issued an order cited as the Canal Boats Order, 1922. This order brings within the scope of the Canal Boats Acts all similar vessels which had hitherto been registered under the Merchant Shipping Acts, and consequently were exempt from inspection.

The inspectors of the Port Sanitary Authority made 668 inspections during the year and 18 contraventions were discovered, which were subsequently dealt with. These figures are included in the foregoing table.

DETAILS OF VISITS TO BOATS PLYING ON THE CANAL.

365 boats were visited, which were registered as follows:—213 at Liverpool, 48 Runcorn, 4 Leigh, 2 Wigan, 35 Manchester, 14 Chester, 28 Blackburn, 21 Leeds.

All were “wide” boats, 10 being propelled by steam, 148 steam-towed, 11 motor-driven, and the remainder horse-drawn.

The number of inspections of these 365 boats was 2,200, and the population comprised:—men, 694; women, 69; children 12; a total of 775 persons, the sexes and ages being as follows:—

Males over 14 years of age	...	...	...	...	694
„ „ 5 and under 14	...	...	...	...	1
„ under 5 years of age	...	...	...	...	7
Females over 12 years of age	...	...	...	...	69
„ over 5 and under 12	...	...	...	...	2
„ under 5 years of age	...	...	...	...	2
					<hr/>
					775
					<hr/>

NOTE.—Males on attaining the age of 14 years, and females 12 years, living on canal boats, become adults, and are recorded as such in the above table.

(Under Reg. III, etc., Sec. 2, Canal Boats Act, 1877.)

Three children of school age were found on canal boats during the year, who were on trips with their parents during the school holidays.

Two families were found on boats on the canal who had not a home ashore in addition to that on board. Neither of these boats were registered at Liverpool.

SUPERVISION OF FOOD SUPPLIES.

The necessity for ensuring a food supply which is pure, clean and free from disease devolves upon the medical officer of health, and owing to the heavy and intricate nature of this work during the year it has been found necessary to give a steadily increasing amount of time and very careful and detailed consideration to food inspection generally.

The duties imposed upon the medical officer by various Acts and Orders are carried out by a fully qualified staff of food inspectors, and entail the examination of the carcasses of animals slaughtered for food at the abattoir and private slaughter-houses, the inspection of meat, fish and fruit at the various wholesale, retail markets, and cold stores, also the inspection of shops, factories, etc., where foodstuffs are sold, prepared or stored for human food. Owing to the increasing growth and importance of this work serious difficulties have been encountered, due to the large increase in the numbers of animals slaughtered during the past few years (the increase being about 50 per cent.), the distances between points of inspection, the extension of the city boundaries, and the limited number of inspectors available.

There are 14 private slaughter-houses and two knackers' yards in the city, but only five of the slaughter-houses are being used to any great extent. Of these, two are used solely for the slaughter of horses for export to Belgium and France for human food.

The inspection of these private slaughter-houses, which are widely distributed over the city, takes up much of the time of the staff.

During the past year 16,539 animals were slaughtered in these slaughter-houses, and all carcasses were inspected before being allowed to leave the premises.

To meet the early morning trade at the wholesale markets the inspection staff begins duty before the markets are open for buyers in order that wholesalers may not be delayed by waiting for the inspection of their goods. Saturday evenings are also occasions for special inspection, the shops and markets being systematically inspected until 9 p.m.

Sunday is still one of the main days for slaughter at the central abattoir and at two or three of the private slaughter-houses; it has consequently been necessary to have some of the food inspectors on duty on such days. It is hoped that with the advent of the new abattoir at Stanley, slaughtering on Sundays will cease.

The number of animals slaughtered during the year shews a small decrease, but the number of carcasses sold in the markets continues to increase, the total number of carcasses sold being 1,106,839, which demonstrates the increasing importance of the city as a meat distributing centre. The following statistics prove the necessity of a definite and systematic food inspection, viz. :—During the year 376,783 animals were slaughtered at the central abattoir; 16,539 animals were slaughtered in private slaughter-houses; 37,700 were brought in already dressed from other centres, and 674,882 chilled and frozen carcasses were sold from the Gill Street meat market.

There were 2,725 animals which shewed abnormal conditions, and a detailed examination was made of each.

CASEOUS LYMPHADENITIS.

Owing to the prevalence of this disease in sheep carcasses imported from certain countries it was found necessary to make a thorough examination of all such carcasses arriving in this country; the examination was carried out at one or other of the cold stores.

The examination was commenced in November, 1928, and since then a considerable number of carcasses were found to be affected with caseous lymphadenitis and were destroyed.

The examination of these carcasses, which numbered 77,699 during the year, and which come under arrangement with the Port Sanitary Authority from the dock area or by rail from London, is still being carried out. The numbers given only represent a small proportion of the total imports into the Port, which latter are dealt with by the Inspectors of the Port Sanitary Authority. It should be noted that a large number of the above carcasses which were condemned were certified as "Inspected and Passed" in the country from which they came, and either bore a label or were stamped with indelible ink to that effect.

There is no evidence that this disease is communicable to man.

TUBERCULOSIS ORDER, 1925.

This Order aims at the eradication of tuberculosis from milking herds and a purer milk supply, and compels owners of cows to notify the local authority of any sign of tuberculosis in the herd. Should an animal be suspected it is examined by the veterinary inspector, and if found to be suffering from tuberculosis it is slaughtered. Further reference to this subject is made under the section dealing with Tuberculosis and the Milk Supply (see pages 224 and 225).

MERCHANDISE MARKS ACT, 1926.

This Act provides for the marking of "Imported" foodstuffs in order that the buying public may know whether they are buying "Foreign," "Empire," or "Home produced" foodstuffs. At present the Order applies to Fresh Apples, Raw Tomatoes, Eggs (in shell or dried), Currants, Sultanas and Raisins, Oat products and Honey.

AGRICULTURAL PRODUCE (GRADING AND MARKING), ENGLAND.

Regulations under this heading have been made whereby the quality of many home-produced goods is clearly indicated to the buyer and insures that buyers will be in a position to know when they are receiving home-grown products of a certain standard of quality.

Foodstuffs prepared and graded under these Regulations have one mark, "The National Mark," which makes it easy for buyers and gives them confidence. This mark conveys, by law, a guarantee that the quality of the produce is of the grade stated on the package or article.

Included in foodstuffs graded are:—Home-killed beef, eggs, dressed poultry, all English wheat flour, canned fruits and vegetables, tomatoes and cucumbers, apples and pears, strawberries and cherries, malt flour and malt extracts.

PUBLIC HEALTH (MEAT REGULATIONS), 1924.

The Regulations provide for better and cleaner methods of handling, storing and transport of meat, also for regulating private slaughter-

houses and the inspection of meat. Much progress has been made, and the objectionable practice of exposing meat in open shop fronts has now ceased, as has also the hanging of bacon outside provision shops to dry.

IRISH DRESSED MEAT.

The quantities of meat dressed in Ireland and sent to the Meat Market have not been so large, principally owing to the closer supervision during the second part of the year in the Free State and the amount of meat from the Free State condemned as unfit for food is in consequence of the improved conditions, very much less, and during the second six months it has not been found necessary to condemn any meat from this State. The following carcasses and parts were rejected as unfit for food:—29 sides of beef, 13 quarters of beef, 11 pieces of beef, 39 pigs' carcasses, 42 part pigs' carcasses, and 1 lamb's carcass.

PRIVATE SLAUGHTER-HOUSES.

There are 14 private slaughter-houses in the city, which have been well conducted and kept in good condition. A number of such slaughter-houses are situated in cramped and congested positions, and are not suitable places for the slaughter of animals, but owing to the great congestion at the central abattoir it has been found necessary to keep these places in use until such time as the new public abattoir at Stanley is opened.

ABATTOIRS.

For a number of years the Medical Officer of Health has been advocating the provision of an Abattoir and Meat Market commensurate with other important branches of public health work in the city. This much-needed reform has, after many years' controversy, been achieved, and it is now definitely stated that the comprehensive scheme at Stanley—including abattoirs, meat market, piggery block, cattle market, casualty block and accommodation for the allied trades—will be completed and ready for occupation in September, 1931.

The position was taken seriously in hand in 1921, and much credit is due to all concerned for the expeditious manner in which the work has been carried out. The buildings and equipment are arranged on

the most hygienic lines, no effort having been spared to ensure that the process of slaughter, selling and storing of meat, and the comfort of the animals will be carried out in the most efficient manner.

An important matter in regard to the cleanliness and sanitation of the premises has been arranged by the provision for slaughtermen and others of facilities for bathing and washing, and special lockers have been provided for the men's clothing. Another important feature is an isolated slaughter-house, which is intended to be used for the slaughter of any animal shewing signs of disease or injury.

Facilities are afforded for inspecting animals during slaughter and the process of dressing, and should a diseased or unsound carcase be discovered, it will be removed to a detention room subsequently referred to, where a closer inspection can be made.

The accommodation is extensive, but all the available space has been taken up by the traders, and in the case of the Abattoir and Meat Markets, it has not been found possible to provide accommodation for all the applicants.

The trade estimate for the annual number of animals to be slaughtered is as follows:—66,500 cattle, 47,200 calves, 586,300 sheep, and 108,200 swine. These figures are in addition to the carcasses of imported meats, which are much higher than the number of animals slaughtered. The following is a brief description of the scheme, and the attached plan shews the general lay out.

DESCRIPTION OF THE NEW STANLEY ABATTOIR, MEAT AND CATTLE MARKETS.

SITE.

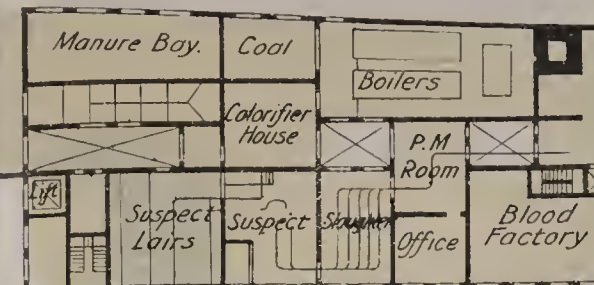
The site of the proposed Abattoir is situated about three miles east of the Liverpool Town Hall, and comprises an area of approximately 15 acres, with a further 4 acres to be acquired. The main frontage is Prescott Road, running east and west; On the north and west are railway sidings and premises.

The intention is to bring the live cattle from the railway on the north side of the site through the Market, Lairage, Slaughter House,

L.M.S. Ry. Cattle Sidings

Cattle Market

Pig Market



Boiler House and Suspect

LAND FOR FUTURE EXTENSION

Casings and Green Tripes

Hide Stores

Sheep Lairage

Rough Cleaning

Offal Building

LAND FOR FUTURE EXTENSION.

Cattle Drive

Lairage

Lairage

Lairage

Lairage

Fodder

Fodder

Pig Lairages

LAND AVAILABLE FOR FUTURE EXTENSION.

CITY OF LIVERPOOL THE NEW LIVERPOOL ABATTOIR AT STANLEY.

SCHEME BY -

T. LAURIE PRICE, - - - - -
CONSULTING ENGINEER, - - - - -
ALDWYCH HOUSE, LONDON, W.C. 2.

ARCHITECT -

ALBERT D. JENKINS, F.S.I., - - -
LAND STEWARD & SURVEYOR,
LIVERPOOL CORPORATION. - - -

JULY, 1929.

LAND FOR FUTURE EXTENSION

Waiting Pens

Waiting Pens

LAND FOR FUTURE EXTENSION

Slaughter Hall

Cooling Rooms

West
Department
Room
Lab.

Cooling Room

OFFALS

Chill Rooms

OFFALS

Cooling Room

Piggery Block

Administrative & Lecture Block

House

Offices

Offices

Chill Rooms

Chill Rooms

Offices

Offices

Dead Meat Market

Main Transport Yard

LAND AVAILABLE FOR FUTURE EXTENSION.

SHOPS

Entrance

PRESCOT ROAD

Exit

Transformer House

RAILWAY

Cooling Rooms, and finally into the Dead Meat Market, which faces the main road and is set back approximately 135 feet. The open space for transport vehicles between the Dead Meat Market and the boundary of the site is controlled by two small offices near the entrance gates.

On the east side of the site the railway siding is brought in from the north with an "inward" and "outward" platform, extending to the frontage of the Dead Meat Market, thus providing rail facilities for the export and import of dead meat.

BUILDINGS.

DEAD MEAT MARKET.—The Dead Meat Market covers a ground area of approximately 440 feet by 135 feet, and has a basement area of approximately 244 feet by 135 feet, and a depth of 9 feet 3 inches below the ground floor level. A gallery at a height of 15 feet 3 inches from the ground floor level is carried round the east, west and south sides of the building. This gallery is the approach to the Offices required by the various meat traders. They are also approached by spiral staircases placed conveniently to the stalls. A portion of the ground floor space is allocated to chambers for chilled meat, and a floor above this space contains the compressors and mechanical equipment.

The remainder of the site is laid out with stalls and roads. There is one longitudinal road and six cross roads, the latter being approached from beneath a glazed overhanging covered way running across the frontage of the Dead Meat Market.

This building is constructed of steel-framed work in conjunction with common brick walls the main facade being faced with a small proportion of red pressed bricks, and stone dressings. A central tower dominates the main front and rises to a height of 92 feet from floor level to cornice. The floors are of granolithic concrete, graded and laid to falls. The roof is pitched in four spans containing north lights in each span and is covered on the south pitch with second quality Welsh slates.

At the rear of the Dead Meat Market a 30-foot glazed covered roadway running the full length of the building connects the main slaughter units with the Dead Meat Market.

By this roadway dead meat can be either put into vehicles or conveyed by meat rails to the railway platform direct from the cooling room without passing into the Dead Meat Market.

PIGGERY BLOCK.—The piggery block is situated on the west side of the Dead Meat Market; the building covers a ground area of approximately 180 feet by 70 feet, and contains a basement floor covering half this area, and a first floor covering the same area as ground floor.

A glazed covered canopy overhangs by 15 feet the entire length of this building—facing the Dead Meat Market.

The materials used in the construction of this building are as follows:—Steel framework, common and pressed brickwork, concrete floors and concrete flat roof, with top lights and slates.

LECTURE HALL AND ADMINISTRATIVE BLOCK.—At the rear of the piggery is situated the lecture and administrative block, which consists of two halls each 28 feet by 31 feet.

MAIN SLAUGHTER BLOCK.—The main slaughter block, situated at the rear of the Dead Meat Market, covers a ground area of approximately 270 feet by 72 feet, comprising waiting pens, slaughter booths, dressing stations and cooling space. In the basement, beneath the slaughter and dressing stations, accommodation is provided to which the offals are delivered by means of iron chutes from the floors above. A similar arrangements of rooms is placed on the first floor over the ground floor units, also with chutes from dressing stations to basement. The first floor waiting and slaughter units are supplied with cattle from two ramps, each ascending from the centre of the two cattle and sheep lairages at the rear of the main slaughter block.

At the end of the main slaughter hall on the ground floor is placed the meat detention room and laboratory in direct communication with the main inspection corridor. The first floor is also equipped with a meat detention room placed centrally between the units.

CATTLE AND SHEEP LAIRAGES.—A 20-feet open road divides the main slaughter block from the cattle and sheep lairages, the latter comprising two blocks each covering a ground area of approximately 200 feet by

105 feet and separated by a 35-feet roadway. The roadway contains two ramps leading down to the offal department in the basement previously mentioned.

OFFAL CLEARING STATION.—On the north boundary of the site adjoining railway an existing building previously used as a lairage and covering a ground area of 175 feet by 150 feet will be utilised as an offal clearing station, when offals from basement of main slaughter block will be dealt with.

BOILER HOUSE, CASUALTY SLAUGHTER-HOUSE, ETC., BLOCK.—On the same boundary stands the boiler house block, covering on ground and first floors an area of approximately 173 feet by 73 feet. The accommodation comprises a boiler house, manure bay, destructor, suspect cattle accommodation, allied trades and general office accommodation for the Public Health and Market Officials. This building is constructed with common brick walls, steel joists and stanchions, concrete floors and concrete flat roof.

PIG LAIRAGE.—To the west of cattle and sheep lairages the pig lairage is situated, covering a ground area of approximately 118 feet by 98 feet.

LIVE CATTLE, SHEEP AND PIG MARKET.—The remainder of the north-west boundary provides accommodation for the live cattle, sheep and pig market, and covers a ground area of approximately 526 feet by 210 feet. This building and the pig lairage are constructed in the following materials:—Steel framework, common brick walls and facings, concrete floors, north light pitched and glazed roof trusses and second quality slated roofing.

INTERNAL ROADS.—The roads and drives are constructed with 6-inch concrete, reinforced with rods and set on 12-inch bed of good, hard dry filling. A duct is formed in the above roadways where required to carry all water, gas, steam and electric mains.

SHOPS.—A block of twelve shops has been provided in the Abattoir grounds, and is situated on the south-west corner of site abutting on to Prescott Road. The accommodation consists of a shop with a store above. The construction consists of brick walls, concrete floors and

concrete flat roofs, with external facings in common and red pressed brick. Internal walls are plaster faced.

LAVATORIES.—Suites of conveniences have been provided both above and under ground on various parts of the site.

GENERAL.—The design is based on the general desire to bring the slaughtering of the animals to a point of efficiency that is at once both humane and hygienic, and at the same time not too far removed from ordinary trade practice.

This has been attained by the installation of the stunning pen as the first process of slaughter, and in this pen the animal can either be hammer stunned or dealt with by the various types of humane killers as may be desired.

From the stunning pen the animal is delivered mechanically on to the main dressing floor, and whilst in the stunned condition, is transported head downwards to the bleeding rail, and in this position the throat arteries are cut and the animal thoroughly bled.

The animal is now transported on the bleeding rail to the dressing position on the floor, and from this point the ordinary flaying and dressing processes are carried out usual to trade practices of the district. Casting machines are also installed for the slaughter of animals by the Jewish method.

A study of the plan will show that the waiting pens do not open directly into, nor have any connection with, the dressing floor except by way of the stunning pen, and animals awaiting slaughter cannot view any of the operations on the dressing floor.

The blood from the animal is carried away by drainage system to the offal department, and all rough offals are transported by means of chutes direct to the offal collecting department below the dressing floor, and are from there taken to the offal cleaning and clearing department at the back of the site, away entirely from the fresh meat, etc.

This offal collecting basement is adequately ventilated with forced intake plenum system, and the exhaust taken away at a height clear of all adjacent buildings. The incoming air will be suitably treated.

The slaughter of the sheep and calves will be on similar lines, except that they will be bled on the crutches respectively.

The pig slaughter house is contained in a separate building, in which the most modern appliances will be installed.

The pigs will be taken by means of easy ramp or lift to the waiting pens on the first floor. After stunning they will be mechanically transported to the sticking rail and bled, and thence to the scalding tanks, and from there to the scraping tables and finally dressed, the offals as before being transported direct to the offal collecting department below. The larger stations will be equipped with mechanical dehairers, each capable of dealing with 50 hogs per hour.

The dressed pigs are then conveyed by a mechanical elevator to the ground floor for cooling and chilling.

Below are given the detailed slaughter arrangements and capacities thereof.

SLAUGHTER ARRANGEMENTS, CATTLE, CALVES AND SHEEP.

GROUND FLOOR.

The main slaughter unit has provision for slaughter facilities on ground and first floors.

The ground floor is divided into thirteen dressing stations, arranged in pairs, and each pair fed from one stunning pen.

The first floor is planned for twelve small stations, each having one set of dressing rails; and one stunning pen to three dressing stations, each dressing station is complete with electric dropping device for delivering slaughtered beasts from the bleeding rail to the dressing floor, and also an electric traversing hoist for dressing purposes.

Each stunning pen is equipped with a separate electric hoist to deliver stunned beasts to the bleeding rail.

The blood from the beasts is taken by gush pits placed under the bleeding rail, and delivered in glazed earthenware drains to the blood collecting tanks in the offal department.

The various dressing stations are equipped with offal rails for the edible offal, and all other offal is despatched to the offal collecting department in the basement floor by means of chutes placed in convenient positions, thus leaving the whole of the dressing floor for dressing purposes only.

Hot and cold water are available in each dressing station.

Immediately adjoining the dressing station are cooling rooms (atmospheric) equal in capacity to a full day's kill (eight hours) of each station.

The total slaughter capacity, based on ten hours' rating, will be equal to 540 cattle, 450 calves, 3,750 sheep, 1,000 pigs, and taking the average weekly kill on trade figures means that the Abattoir would be in full use three days a week for cattle and sheep, and slightly less for calves and pigs.

The peak load or maximum daily kill set down by the trade would mean that the Abattoir would require to be operated for a period of between 14 to 20 hours to attain the trade requirements, and the output under these conditions would equal : 1,080 cattle, 900 calves, 7,500 sheep, 2,000 pigs.

On the ground floor the dressing space for two stations is 21 feet wide by 36 feet long, and the floor area, including offal arrangements, is equal to 1,512 square feet.

On the first floor the small stations are each 29 feet long by 14 feet wide, equalling 406 square feet each.

LAIRAGE ACCOMMODATION.—The lairages have been designed so that they can be used for long periods, and full arrangements have been made for feeding and watering the animals on the most modern principles.

The capacity of the lairage unit and waiting pens is equal to : Cattle, 1,000 ; sheep, 940.

CATTLE MARKET.—The portion of the Cattle Market to be dealt with has accommodation for : Cattle, 1,212; sheep, 4,000 (includes accommodation available in lairages); pigs, 1,500.

The Sheep Market portion is arranged with pens of dual capacity for sheep or cattle, and will accommodate sheep to number already stated, viz., 4,000 sheep, or 600 cattle.

PIGGERY.—A separate department is reserved entirely for the lairage and slaughter of pigs, and the most modern appliances are contained in the equipment.

AUXILIARIES.—Chill room accommodation has been designed on ground floor of Meat Market for 1,000 sides, and cold storage equal to a load of 500 tons will be installed in the basement at end of building adjacent to railway. The ultimate possible capacity, if circumstances required, could be increased to 2,000 sides and 2,000 tons, respectively.

The chill rooms are in direct communication with the cooling rooms and the market, on a continuous rail system connecting up to all stalls in the market and the railway sidings.

Extensive railway accommodation has been arranged with inward and outward loading banks, and the icing of trucks prior to transportation can be arranged for if required.

The allied trades are accommodated in a portion of the existing lairage building, which will be fitted out as an offal clearing station, and in conjunction with this station a department for rough cleaning of the offal has also been provided.

NOTE.—The figures estimated by the trade have been used in the general design and allocation of space and, since these figures have been established, further applications have been received which require consideration.

ANIMALS SLAUGHTERED FOR HUMAN FOOD IN THE CITY

	Bulls	Bullocks.	Cows.	Heifers.	Calves.	Sheep.	Lambs.	Goats.	Swine.	Horses
Public Abattoir	843	13,711	11,135	4,481	27,544	36,382	258,333	180	34,490	—
Private slaughter-houses ...	—	155	40	141	201	6	2,914	—	13,082	935
TOTAL ...	843	13,866	11,175	4,622	27,745	36,388	251,247	180	47,572	935

There are no shops in the city where horse-flesh is sold for human food, but 935 horse carcasses were inspected and stamped by the food inspectors before leaving the slaughter-house for export to Belgium and France, ten carcasses were rejected as unfit for human food.

CARCASSES TOTALLY OR PARTIALLY DESTROYED.

Disease.	No.	Disease.	No.
Actinomycesis, partial ...	38	Jaundice ...	38
Abcess, total ...	4	Joint Ill ...	6
„ partial ...	18	Melanosis ...	2
Anaemia ...	1	Nephritis ...	2
Arthritis ...	55	Neoplasms (Malignant) ...	4
Asphyxia ...	182	Pyæmia ...	12
Brine Damaged ...	1	Peritonitis ...	38
Caseous Lymphadenitis ...	75	Pneumonia ...	28
Dropsy ...	163	Pleurisy ...	1
Decomposition, total ...	63	Septicaemia ...	13
„ partial ...	91	Septic Mastitis ...	7
Distomatosis ...	130	„ Metritis ...	11
Emaciation ...	204	„ Pericarditis... ..	12
Enteritis ...	29	Swine Fever ...	28
Gastritis ...	6	Swine Fever Contacts ...	16
Granuloma ...	1	Swine Erysipelas ...	7
Immaturity ...	34	Tuberculosis, total ...	330
Injury, total ...	34	„ partial ...	703
„ partial ...	551	Uraemia ...	2
Johnes Disease ...	3	Urticuria ...	1

During the year 3,044 carcasses were rejected as unfit for human food, in addition to 796 destroyed at the knackers' yards.

ORGANS DESTROYED.

Disease.	No.	Disease.	No.
HEADS AND TONGUES :—			
Tuberculosis	2,444	Decomposition	165
Abscess	148	Pericarditis	58
Actinomycosis	44	Swine Fever Contacts	56
Decomposition	64	SPLEENS :—	
Swine Fever Contacts	30	Tuberculosis	951
Injury	8	Swine Fever Contacts	56
LUNGS :—		Peritonitis	19
Tuberculosis	2,589	STOMACHS :—	
Congestion	1,326	Tuberculosis	945
Unclassified Cystic Conditions	1,176	Swine Fever Contacts	56
Abscess	762	Peritonitis	22
Pneumonia	262	Decomposition	6
Decomposition	238	KIDNEYS :—	
Swine Fever Contacts	56	Tuberculosis	961
Pleurisy	16	Decomposition	126
Strongylosis	10	Cysts	24
Melanosis	1	Cirrhosis	16
LIVERS :—		Nephritis	2
Tuberculosis	2,516	Necrosis	1
Distomatosis	6,892	UDDERS :—	
Echinococci	1,313	Tuberculosis	8
Decomposition	572	Mammitis	232
Abscess	425	Actinomycosis	37
Cirrhosis	678	Abscess	15
Cav. Angioma	118	Injury	1
Swine Fever Contacts	56	INTESTINES :—	
Peritonitis	19	Tuberculosis	1,140
Parasitic (unclassified)	11	Swine Fever Contacts	56
Actinomycosis	1	Peritonitis	19
HEARTS :—		Johnes Disease	21
Tuberculosis	1,722		
Congestion	411		

QUANTITIES OF FISH, RABBITS, POULTRY AND GAME WHICH PASSED THROUGH THE WHOLESALE MARKET.

	FISH.				RABBITS.	POULTRY.	GAME.
	Wet. Tons.	Dry. Tons	Shell. Tons.	Salmon. Tons.	No. of Packages.	No. of Packages.	No. of Packages.
1930	17,300	3,470	637	34	8,696	7,694	307

The above figures do not include packages of fish, rabbits, etc., dealt with by firms not under the control of the Markets Committee

FRUIT AND VEGETABLE MARKETS.

Large consignments from all over the world passed through the fruit markets during the year. The wholesale depot in Queens Square, Liverpool, is the principal distributing centre in the country for imported fruit, and during the year 114,728 tons of vegetables passed through the vegetable market.

PREMISES VISITED BY THE FOOD INSPECTORS.

Slaughter houses.	Butchers' shops.	Fruit shops.	Fish & Fruit shops.	Food Hawkers' premises.	Jam factor-ies.	Pickle factor-ies	Food factories	Knackers yards.	Total Visits Paid
5,407	23,567	28,511	27,769	2,523	71	86	523	50	88,507

Sixty-six samples of foodstuffs were obtained for bacteriological and analytical examination, including fish, shellfish, meat, fruit and canned food. The following foodstuffs were condemned as unfit for human food, viz. :—Beef, mutton and lamb, 631,852 lbs.; wet and dry fish, 173,729 lbs.; mussels, cockles and winkles, 241 packages; crabs, lobsters, crayfish and prawns, 3,147 lbs.; poultry, 4,993 head; game, 481 head; rabbits, 5,987 head; fruit, 591,424 lbs.; vegetables, 291,593 lbs.; canned foodstuffs, 4,215 tins; eggs, 705; venison, 272 lbs.; sweets, 6,688 lbs.; chestnuts, 13,420 lbs.; cokernuts, 228; oysters, 200.

DAIRIES, COWSHEDS AND MILKSHOPS.

There has been no change in the method of procedure respecting the licensing of cowsheds, and the registration of dairies, milkshops and milkstores during the year.

The cowsheds and dairies, in the newly incorporated area of Croxteth Park and West Derby Rural have been brought up to the high standard of ventilation which is maintained in this city. To achieve this end, and without penalising the occupiers by reducing the number of cows previously kept, it was found necessary to alter the majority of the cowsheds in the added area in order to provide the 600 cubic feet of air space per cow, which is the Liverpool standard. To promote the handling and cooling of milk, with the subsequent cleansing and storage of milk utensils on hygienic lines, additional lighting of cowsheds and the provision of cooling rooms, and in some

cases additional dairy accommodation were needed. All this work has been carried out without friction, and to the complete satisfaction of the owners and occupiers of the premises.

Throughout the whole city the Milk Acts and Orders are being satisfactorily carried out. The progress made as regards the hygiene of cowsheds and dairies is maintained. This is due to systematic and regular observations and the educational propaganda work of the department. Suggestions made by the inspectors are welcomed by the trade and are generally accepted and adopted.

Approximately 50 per cent. of the retail sale of milk for household consumption is now delivered in bottles. This method of milk distribution is a distinct hygienic gain—it greatly lessens the exposure of milk and provides additional security against contamination both during distribution and in the home of the consumer. The growth of bottling has been influenced by the extension of sterilisation and pasteurisation of milk, and to a lesser extent by the up-to-date cow-keeper. This system of milk delivery, both in its economic and in its hygienic bearing may prove to be an influential factor in strengthening public confidence in the value and quality of the milk supply.

The road transport of milk is slightly on the increase, being approximately 67 per cent. of the milk brought into Liverpool, as compared with 65 per cent. in 1929. The flexibility of road transport, its small working unit and the saving of terminal handling which is involved both for loads and for empties, are factors which are bound to secure for this form of conveyance a steadily growing consideration; it is not possible to forecast the future, but when the new Mersey Tunnel is opened, it is thought there will be a further increase of road transported milk from Cheshire and the Welsh border farms. The average daily milk supply is slightly lower for 1930 than for 1929, as the following figures show :—

			Gallons per day	
			1929	1930
Milk produced from cows kept in the city	...		11,985	11,088
„ „ outside the city—road transport			20,955	21,592
„ „ „ „ rail transport			11,244	10,508
			<hr/>	<hr/>
			44,184	43,188
			<hr/>	<hr/>

This decline which is to be regretted is due to economic causes, viz., bad trade, and not to the general condition of supplies, which have greatly improved both in the quality of composition and cleanliness within recent years.

<u>STATISTICS RESPECTING COWSHEDS.</u>							<u>1930</u>
Number of applications to keep cows on premises not previously licensed							6
,, applications granted							6
,, cows applied for							108
,, ,, granted							108
,, applications for transfer to fresh tenants of cowsheds previously licensed							19
,, ,, granted							18
,, ,, in abeyance pending alterations ...							1
,, ,, to keep additional stock ...							2
,, ,, granted							2
,, additional cows applied for							10
,, ,, ,, granted							10
,, cowsheds on the register 31st December, 1930 ...							281
,, cows licensed to be kept within the city area ...							4,931
Average number of cows ,, ,, ,, ...							3,696

<u>COWSHED INSPECTION.</u>					<u>1929.</u>	<u>1930.</u>
Number of inspections of cowsheds					2,103	2,024
,, found incorrect					57†	59†

Forty-one notices were issued to occupiers directing their attention to minor contraventions, which were at once complied with—prosecutions being unnecessary.

The number of cowsheds in the city during the years 1926 to 1930, inclusive, together with the number of cows licensed to be kept, and the number of applications for new cowsheds, are shewn in the following table :—

Years	Cowsheds	Cows	Applications.
1926 ...	279 ...	4,727 ...	2
1927 ...	273 ...	4,723 ...	2
1928 ...	276 ...	4,854 ...	25†
1929 ...	282 ...	4,916 ...	18
1930 ...	281 ...	4,931 ...	6

† Premises undergoing alterations in the newly added districts included.

‡ Incorporation of Croxteth Park and West Derby Rural.

MILKSHOPS.

				<u>1929.</u>		<u>1930</u>
Number of new applications for registration	...			24	...	36
„ transfers	...	...	...	90	...	86
Total number of applications	...	...	...	114	...	122
Number of applications granted	...	...	...	95	...	108
„ „ withdrawn	...	...	...	12	...	13
„ „ in abeyance	...	...	...	7	...	1
Number of milkshops on the register at the end of 1926...					...	797
„ „ „ „				1927...	...	790
„ „ „ „				1928...	...	808
„ „ „ „				1929...	...	795
„ „ „ „				1930...	...	785

DAIRIES AND MILKSHOPS.

				<u>1929.</u>	<u>1930.</u>
Number of inspections of dairies and milkshops	...			7,598	7,967
„ found incorrect	...	...	...	64*	56*

Fifty-one caution notices were issued to occupiers of milkshops for minor contraventions, which were at once complied with—prosecutions being unnecessary.

Observations are made at railway stations to ensure that sections 28 and 29, Milk and Dairies Order, 1926, are being complied with. Thirty notices were sent during the year to farmers outside the city drawing their attention to defective milk churns; these notices have resulted in a great improvement as regards the type of churn now being sent to Liverpool.

PURVEYORS OF MILK.

In addition to the registered milkshops there are 119 registered purveyors of milk, who, having no dairies of their own, are registered at the dairy from which their milk is obtained, and where their cans and utensils are stored.

Routine visits are paid to these purveyors at their homes and in the streets. They are also checked at the wholesalers' dairies at which they are registered.

* Premises undergoing alterations in the newly added districts included.

THE FOLLOWING ARE THE STANDARDS REQUIRED UNDER THE TERMS OF THE MILK SPECIAL DESIGNATIONS ORDER, 1923, FOR THE VARIOUS DESIGNATIONS WHICH IT IS ILLEGAL TO USE IN CONNECTION WITH THE SALE OF MILK, EXCEPT UNDER LICENCE GRANTED BY OR UNDER AUTHORITY OF THE MINISTER OF HEALTH.

DESIGNATION.	RAW MILK. (The milk shall not at any stage be treated by heat.)			
	HERDS. Veterinary examination and tuberculin testing (if required) with appropriate certificates to Licensing Authority.	Bacterial content on sample before delivery.		OTHER CONDITIONS.
		Maximum number of bacilli per cubic centimetre.	Coliform bacilli.	
Certified.	Tuberculin tested (6 monthly) and physically examined (3 monthly).	30,000	Absent in $\frac{1}{10}$ cubic centimetre.	Bottled and sealed on the farm, with name of farm, day of production, and word "Certified" on each bottle cap.
Grade A Tuberculin tested.	Tuberculin tested (6 monthly) and physically examined (3 monthly).	200,000	Absent in $\frac{1}{100}$ cubic centimetre,	Delivered to consumers in (a) the bottles or the sealed containers as received from the farm; (b) suitable containers of not less than two gallons capacity; (c) bottles with the name of the dealers by whom the milk was bottled, the address of the licensed bottling establishment, the day of production and the words "Grade A (tuberculin tested)" or "Grade A" on each bottle cap.
Grade A	Physically examined (3 monthly).			
PASTEURISED MILK.				
Pasteurised.	The milk to be maintained at a temperature of not less than 145° and not more than 155° F. for at least half-an-hour, and immediately cooled to a temperature of not less than 55° F. 1. The milk shall not be so heated more than once. 2. The type of apparatus used and the method employed shall be satisfactory to the Licensing Authority. 3. Suitable labels to be attached with date and designation.			

MILK (SPECIAL DESIGNATIONS) ORDER, 1923.

Although the order has been in force since 1923, the quantity of designated milk sold has been small, but has increased during the year under review.

To produce "graded milk" a considerable amount of initial expenditure is entailed, especially for the production of the "tubercle-free milk." In comparison the price of the designated "tubercle-free milk" is much higher than that of ordinary (bulk) milk, and until such time as the price is reduced the demand for graded milk will be relatively small, as unfortunately the fact that one milk is dearer than another is the only circumstance considered by the average person, and the difference in quality is frequently ignored. As regards grade "A" milk, with the exception of the licensing fees and the provision of a simple but adequate sterilising equipment, there is very little difference between the cost of producing grade "A" milk, and the cost of producing and bottling milk within the city. The Liverpool cowkeeper usually obtains the same price for his milk as he would receive were he to sell it as Grade "A," and has therefore no inducement to change and pay the high fees required, as presumably his customers do not consider the milk differs in quality-keeping powers and other factors which would make it worth their while to leave him and purchase grade "A" milk.

During the past year there has been a slight increase in the quantity of "graded milk" supplied to Liverpool, as the following figures show :—

PRODUCERS.				1926	1927.	1928.	1929.	1930
No. of Producers supplying " Certified "	...	...		3	5	6	6	5
"	"	"	" Grade A "	None	5	13	14	13
"	"	"	Tuberculin Tested					
"	"	"	" Grade A " ...	1	2	22	24	23
BOTTLEERS.								
No. of Vendors licensed to bottle " Grade A "				None	1	2	2	2
			Tuberculin Tested					
"	"	"	" Grade A " ...	1	1	3	3	3
"	"	"	Pasteurized Milk ...	—	—	—	—	1
VENDORS.								
No. of Vendors licensed to sell " Certified "				6	10	10	9	15
"	"	"	" Grade A "	3	4	8	10	16
"	"	"	Tuberculin Tested					
"	"	"	" Grade A " ...	1	2	13	24	39
				15	30	77	92	117

LIVERPOOL CORPORATION ACT, 1921 (SEC. 450).

ICE CREAM MAKERS AND VENDORS.

Systematic inspections have been made of the premises utilised by street traders solely for manufacturing ice cream.

The dwellings which these street traders occupy have also been kept under observation, and in no instance during the past year has it been found that ice cream has been made or stored in or about these dwellings.

A systematic inspection has also been made of shopkeepers' premises which are used for the manufacture or sale of ice cream.

						<u>1930.</u>
Number of premises under inspection...	...	...	...	...	...	1,423
„ visits made ...	...	...	...	...	...	2,786

PIGGERIES.

There were sixteen applications, involving the keeping of 684 pigs, made during the year, ten of these were new applications for licence to keep 348 pigs, and all were granted.

Eight of the applications were for premises in the added areas of Croxteth and West Derby Rural—the majority of premises licensed are situated in open country in which pigs can be kept without infringement of the requirements.

There are now within the city area as extended 143 premises where 4,678 pigs are licensed to be kept. The approximate number of pigs kept is 3,171.

*619 visits of inspection to piggeries were made during the year.

* From 1st June to October 8th, 1930, no visits were made to piggeries owing to an outbreak of Swine Fever.

TUBERCULOSIS AND THE MILK SUPPLY.

The following information of the work of the department during the year has been extracted from the report kindly supplied by the Chief Veterinary Officer :—

The year has not been marked by any changes of moment regarding the milk supply of the city.

Approximately one-third of the total milk supply is produced within the city, and the remaining two-thirds are sent in from country districts. The tendency is for the country-produced milk to increase in amount while that produced locally remains stationary or falls slightly.

MILK PRODUCED WITHIN THE CITY.

The estimated cattle population of the city comprises 3,696 dairy cows and a small number of bulls, stores and young stock. The total licensed city cowsheds number 281, with provision for 4,931 cows.

During the year twenty cases of tuberculosis of the udder were detected among city cattle, in addition to various other forms of scheduled disease. Of the twenty udder cases, twelve were found during routine clinical examination, four were reported as suspect by the respective owners, four from bulk samples of milk taken by the Medical Officer of Health's Department were reported as tuberculous.

Of thirty-four cows notified by the owners or their veterinary surgeons as suspected, four proved to have tuberculosis of the udder, and twelve tuberculosis in other notifiable forms.

Of 332 samples of milk taken by the Medical Officer of Health's Department, thirteen were referred to the Chief Veterinary Officer as tuberculous, consequent examination of the involved herds resulting in the detection of four cases of tuberculosis of the udder. In the remaining nine cases, the supplies were proved to be non-tuberculous on the day of the examination of the herd, showing that the diseased animal had been removed or that the contamination had ceased.

A number of cattle were also dealt with under the Tuberculosis Order of 1925 as suffering from reportable forms of the disease other than in the udder, the particulars of which will be found under that section.

The following is a table of the veterinary examination of cows in the city cowsheds, together with the figures for the previous five years for comparison :—

Year.	Visits to cases notified by owners.	Routine and other visits.	Total visits.	Samples of milk from suspected town cows examined microscopically.	Cows Examined.	Cows with tuberculosis of the udder.
1925	63	717	780	71	11,161	21 or 0·18%
1926	48	777	825	70	10,515	20 or 0·19%
1927	59	880	939	95	12,148	19 or 0·15%
1928	54	796	850	68	10,613	25 or 0·23%
1929	55	904	959	66	12,105	25 or 0·21%
1930	34	879	913	123	11,463	20 or 0·17%*

* Allowing for re-examination of the same animals, the actual incidence is approximately 0·5% per annum.

Taking the estimated cattle population of the city at 3,696, the figures for 1930 show that each animal was examined approximately three times during the year. The value and importance of routine veterinary examination of the herds in the city cannot be too highly emphasised as clinical examinations of the animals, plus microscopical examination of the milk, now result in the detection of tuberculosis, and the slaughter of the affected animals, within a day or two of the visit as against a delay of from four to five weeks while awaiting the result of biological tests. Examination of the herds, at least once every three months, is desirable.

The supervision of general hygiene and statutory sanitary requirements is conducted by an inspector of the department, who reports an improvement.

1,156 routine visits were made, and 75 special visits to supervise disinfection of premises from which diseased cattle had been removed.

Six official notices were served on occupiers of premises requiring them to remedy certain faults or carry out necessary repairs.

MILK PRODUCED OUTSIDE THE CITY.

Since 1st September, 1926, the onus of taking action where infected country milk is involved has been placed upon the authority of the producing district by the operation of the Milk and Dairies (Consolidation) Act, 1915.

The detection of infected supplies rests with the Medical Officer of Health, who causes samples from bulk to be taken as the milk comes into the city.

Infected samples are reported to the Medical Officer of the responsible authority of the county of origin, whose duty it is to arrange for suitable investigation at the source.

The Chief Veterinary Officer has made a practice of being present at first examinations of suspected herds, but as the work is done by the county officers no complete table of statistics can be shown as was formerly done.

During the year 33 such visits have been made. One farm was implicated on two separate occasions.

The following table shows the counties and number of farms therein which sent tuberculous milk into Liverpool and which were examined during the year. In those cases where no cow was detected with a tuberculous udder the contamination had either ceased or the affected cow had been sold for slaughter. Some of the particulars have been kindly furnished by the examining veterinary officers:—

County.	Farms sending in tuberculous milk.	Cattle examined and re-examined.	Tuberculous udders detected and destroyed. †	Contamina- tion eliminated.
CHESHIRE	13	624	7	7
DENBIGHSHIRE	13	513	11	5
LANCASHIRE	6	375	5	3
STAFFORDSHIRE	1	90	...	1
TOTALS	33	1,602	23	16

† In some cases more than one animal has been dealt with on a farm.

The necessity for some steps being taken to prevent this state of affairs has been emphasised in previous reports.

It is very desirable that all milk-producing cattle should be subjected to routine veterinary examination. So far as the Chief Veterinary Officer is aware this has not been instituted in any of the counties from which Liverpool draws its principal supplies. Routine inspection by a whole-time veterinary staff has, however, been introduced in the following counties:—West and North Ridings of Yorkshire, Durham, Cumberland, Surrey, Glamorgan, and many areas in Scotland.

An attempt is now being made to induce producing areas to institute routine veterinary inspection.

CORPORATION MILK SUPPLIES.

Grade A (Tuberculin-tested) milk is purchased for Infant Welfare Centres and for drinking purposes in the City Hospitals, in addition to the ordinary supply used for cooking. Periodical examinations of all farms supplying milk is carried out as shown in the following table:—

	No. of Farms.	Visits.	Cows examined.
Hospitals 	12	46	1,900
Infant Welfare Centres 	4	14	945

Three hundred and thirty-three animals have been tested with tuberculin during the year, involving 117 visits to farms.

The hospitals' milk supply for cooking purposes was found to be tuberculous on one occasion, and as a result of examination two tuberculous udders were detected. One farm supplying accommodation milk to the infant welfare centres was reported as sending in tuberculous milk, but when visited was found to have ceased to supply. Ultimately the contamination was proved to have ceased.

TRANSFERRED INSTITUTIONS.

When the Public Assistance Committee took over the functions of the Board of Guardians in April, an examination of the farms supplying

milk to the various institutions was carried out. A list of farms was supplied by the Public Assistance Officer and contained the names of premises submitted by the contractors when the tenders were accepted in October, 1929. The following are the results of the first examination :—

1. Four local producer-contractors were found to have premises and cows that were satisfactory.
2. One wholesale contractors' list submitted seven farms in Cheshire, Denbighshire and Shropshire, and of these it was ascertained that four were not supplying, two were unsatisfactory, and only one was satisfactory.
3. In the other wholesale contractors' list nineteen farms were submitted, situated in Shropshire, Denbighshire and Merionethshire. Of these it was found that six were not supplying, eight were not satisfactory and five were satisfactory.

When the contracts were made in October, under the Corporation, the contractors undertook to supply only from farms which were approved. All the premises and cattle were inspected and the result was as follows :—

1. Five local producer-contractors were found to be satisfactory, but during the period covered by this report three sent in tuberculous milk. In two cases the infection was traced to tuberculous udders and the animals slaughtered. In the third case the contamination was proved to have been eliminated.
2. One wholesale contractor submitted the names of sixteen farms before seven satisfactory ones could be finally selected. Of the seven farms several had slight defects, which were rectified. During the period reviewed one farm sent in tuberculous milk. The contamination was subsequently proved to have been eliminated.
3. The other wholesale contractors' list submitted the names of five farms, and these were found to be satisfactory, two of them producing Grade A milk. All the premises supplying milk to the Transferred Institutions were again submitted to examination as a routine measure in December, and in future, as in the case in the City Hospitals and Infant Welfare farms, they will be examined quarterly.

There is little doubt that in a comparatively short space of time the premises of the producers could be made as satisfactory as the farms supplying ordinary hospital milk, but in reviewing the whole situation, although there has been considerable improvement as a result of the measures taken by the veterinary staff, there is still a lot to be done to raise the standard to the level of the farms that have supplied the hospitals, etc., for a number of years.

The examination of the premises responsible for the Transferred Institutions supply has necessitated long journeys into the counties of Lancashire, Cheshire, Denbighshire, Merionethshire, Shropshire and Westmoreland, and during the year 66 visits have been made and 2,588 cattle examined.

During the year two veterinary surgeons, who propose taking up municipal work, have been fully instructed in milk and dairy inspection, and in the administration of the Diseases of Animals Acts.

THE TUBERCULOSIS ORDER OF 1925.

Under this Order, certain forms of bovine tuberculosis are notifiable by owners and veterinary surgeons.

Its object is to eliminate such tuberculous cattle as are dangerous to the health of human beings or to other cattle by spreading infection. Many cattle are infected with tuberculosis in such a form as not to be an immediate source of infection to others or a direct danger to human health. Such are not included within the Order.

Owners are compensated for cattle which are slaughtered under the Order, the scale being three-quarters of the market value for a case which is found on post-mortem to be not advanced, and one-quarter for animals which are found on post-mortem to be advanced within the meaning of the Order.

Seventy-five per cent. of the above payments in compensation are borne by the Ministry of Agriculture and Fisheries, the remaining 25 per cent. being paid by the Local Authority. The latter amount, however, is, in most cases, counter-balanced by the sum received for salvage. Since the introduction of the Order there has been a credit balance to the city each year.

The following table shows the number of animals dealt with during 1930, and the form in which they were diseased:—

Total number of animals examined.	Slaughtered.	Tuberculosis of udder.	Giving Tuberculous Milk.	Tuberculous emaciation.	Chronic cough and definite signs of Tuberculosis.
619	46	20	...	5	21

Compensation refunded by	Compensation paid to
Ministry £177 7 6	Owners £237 10 9
Amount of salvage recovered by sale of carcasses...	Credit balance to Local Authority
82 13 5	22 10 2
<u>£260 0 11</u>	<u>£260 0 11</u>

Total value of animals slaughtered in connection with above, £524 15s. 0d.

The carrying out of the Order involves a considerable amount of time devoted to microscopical diagnosis, post-mortem examination, and disinfection of premises.

In addition to the requirements of this Order, the Chief Food Inspector notifies the Veterinary Department whenever a cow from Liverpool premises is found on slaughter to have a tuberculous lesion. The stall is then thoroughly disinfected. During the year 75 visits were paid for this purpose.

BACTERIOLOGICAL EXAMINATION OF MILK.

From January to December, 1930, 673 samples of milk from sources outside the city were submitted for bacteriological examination, and 36 of the samples were found to be contaminated by tubercle bacilli, this being equal to 5·34 per cent.

During the same period 332 samples of milk from town cowkeepers were submitted for bacteriological examination, and 14 of the samples were found to be contaminated by tubercle bacilli, this being equal to 4·2 per cent.

The following tables give particulars relating to the samples taken and result of examination, together with the number of cows examined :

TABLE RELATING TO COUNTRY SAMPLES.

Year.	Samples from bulk.			Farms affected.
	No. taken.	Tubercular.	Percentage Tubercular.	
1924	549	57	10·38	25
1925	482	36	7·46	29
1926	449	34	7·57	36
1927	523	24	4·58	21
1928	488	34	6·96	22
1929	596	26	4·36	23
1930	673	36	5·34	32

TABLE RELATING TO TOWN SAMPLES.

Year.	Samples from bulk.		
	Number taken.	Tubercular.	Percentage Tubercular.
1924	232	22	9·48
1925	211	8	3·80
1926	234	13	5·55
1927	253	10	3·95
1928	258	8	3·1
1929	327	13	3·9
1930	332	14	4·2

SAMPLES OF MILK SUBMITTED FOR BACTERIOLOGICAL EXAMINATION DURING 1930.

	No. taken.	No. found tubercular.
Samples of town milk	332	14
„ taken at railway stations	173	13
„ „ „ infant welfare centres	46	1
„ „ „ day nurseries	17	—
„ „ „ city hospitals	144	1
„ „ „ institutions	81	6
„ „ „ wholesale milk depots	212	15

ADMINISTRATION OF THE FOOD AND DRUGS
(ADULTERATION) ACT, 1928, AND OTHER ACTS ORDERS
AND REGULATIONS.

A section of the staff supervises the composition and purity of food and drugs under the above Acts and under Regulations issued from time to time by the Ministry of Health.

The object of this supervision is to ensure that food is free from adulteration, is of the nature, substance and quality demanded by the purchaser, and contains no chemical or other preservative which is dangerous to health. The latter is controlled by the Public Health (Preservatives in Food) Regulations.

Samples of foods and drugs are purchased in shops in accordance with the routine laid down in the Act, and great care is exercised in procuring these samples.

In practice, a large number of "informal" samples have been taken during the year, i.e., they are taken without any intimation to the vendor that the samples are to be analysed. This practice is valuable—it gives intimation as to sources of fraud, but no action is taken until a sample has been purchased "officially"—it saves time and trouble, and causes little annoyance to honest shopkeepers.

In order to consolidate the Acts dealing with the adulteration of food and drugs, an Act was passed entitled the Food and Drugs (Adulteration) Act, 1928, which incorporates the main provisions of several Acts dealing with foods, including margarine and butter.

DETAILS OF SAMPLES OF MILK OBTAINED FOR
CHEMICAL ANALYSIS.

	<u>1929.</u>	<u>1930.</u>
Number of samples purchased on week-days in town ...	1,338	1,243
„ informations	37	34
„ samples taken at railway stations on week-		
days	672	424
„ informations	7	0
„ samples purchased on Sundays in town ...	230	226
„ informations	5	8
„ samples taken at railway stations on Sundays	87	41
„ informations	0	0
„ samples taken at city hospitals	280	336
„ informations	0	0

	<u>1929</u>	<u>1930.</u>
Number of samples taken at Corporation infant welfare centres and day nurseries	402	434
„ informations	0	0
„ samples taken at other institutions	331	381
„ informations	0	0
„ samples taken at wholesale milk depots	563	418
„ informations	0	5
„ samples taken at wholesale milk depots on Sundays	15	22
„ informations	0	0

FOOD AND DRUGS (ADULTERATION) ACT, 1928.

	<u>1929</u>	<u>1930.</u>
Number of visits to wholesale dealers in margarine ...	22	71
„ visits to shops	3,955	4,193
„ visits to other places	1,055	1,303

THE PUBLIC HEALTH (PRESERVATIVES, &C., IN FOOD) REGULATIONS.

Report for the year ended 31st December, 1930 :—

Number of samples examined for the presence of a preservative :—

Milk, 3,525; cream, 52.

Number in which a preservative was reported to be present :—

(a) Milk	0
(b) Cream	0

SPECIAL EXAMINATIONS.

The total number of samples submitted during 1930 for special examination was 27.

POISONS AND PHARMACY ACT, 1908.

The Poisons and Pharmacy Act, 1908, came into operation on the 1st April, 1909.

The object of the act is to regulate the sale of certain poisonous substances. and to amend the Pharmacy Acts. It is fully referred to in the annual report for 1909.

The number of licenses issued under this Act during the year 1930 was 25.

SUMMARY OF OFFENCES UNDER THE FOOD AND DRUGS (ADULTERATION) ACT, 1928, FOR THE YEAR 1930.

No. of Informations.	Nature of Sample.	Nature of Offence.	RESULT OF LEGAL PROCEEDINGS.				Costs.
			No. of convictions.	Withdrawn on payment of costs.	Withdrawn and Dismissed without costs.	Fines.	
14	Milk ...	Adulterated with water ...	14	...	...	£ s. d. 22 0 0	£ s. d. 13 17 0
20	" ...	Deficient in milk fat ...	19	...	1	25 0 0	21 0 0
5	" ...	Dirty milk ...	5	...	...	...	6 6 0
8	" ...	Coloured with Annatto ...	8	...	...	4 0 0	8 8 0
1	Pearl Barley ...	Contained 75 parts of Sulphur Di-Oxide per million parts of the sample ...	...	...	1	...	...
1	Lunch Cake ...	Contained 620 parts of Borates per million parts of sample ...	1	...	...	1 0 0	1 1 0
1	Grill Sauce ...	Contained 700 parts of Benzoic Acid per million parts of sample ...	1	...	...	3 0 0	1 1 0
2	Black Currant Jam ...	Contained an excess of Sulphur Di-Oxide ...	...	...	2	...	...
52			48	...	4	£55 0 0	£51 13 0

Summary of Samples submitted for analysis from January 1st to December 31st, 1930,
and other statistical details.

INFORMAL SAMPLES.			FORMAL SAMPLES.				
Number taken.	Number genuine.	Adulterated.		Number genuine.	Number taken.	Number adulterated.	Informations.
		*Class A.	†Class B.				
—	—	—	—	8	8	—	—
11	11	—	—	11	11	—	—
1	1	—	—	186	190	3	1
35	35	—	—	—	—	—	—
41	41	—	—	—	—	—	—
145	145	—	—	536	536	—	—
6	6	—	—	5	5	—	—
53	53	—	—	26	26	—	—
15	15	—	—	66	66	—	—
45	44	1	—	—	—	—	—
7	7	—	—	117	117	—	—
161	159	2	—	11	11	—	—

INFORMAL SAMPLES.				FORMAL SAMPLES.					
Number taken.	Number genuine.	Adulterated.		Number taken.	Number genuine.	Adulterated.		Number caut'nd.	Informations.
		*Class A.	†Class B.			*Class A.	†Class B.		
50	43	1	6	100	90	1	9	1	—
1	1	—	—	23	23	—	—	—	—
1	1	—	—	21	21	—	—	—	—
52	52	—	—	—	—	—	—	—	—
9	9	—	—	2	2	—	—	—	—
16	16	—	—	16	16	—	—	—	—
22	22	—	—	143	143	—	—	—	—
108	108	—	—	2	2	—	—	—	—
9	9	—	—	—	—	—	—	—	—
—	—	—	—	108	107	1	—	—	—
5	5	—	—	24	24	—	—	—	—
8	8	—	—	—	—	—	—	—	—
70	58	11	1	10	7	3	—	13	2
				Nature of Sample.					
				Condiments and spices					
				Corn flour					
				Cream of tartar					
				Cream and Tinned Cream					
				Custard powder					
				Dripping and compound					
				Dried fruits					
				Drugs					
				Egg substitute powder					
				Flour.....					
				Ground almonds					
				Honey					
				Jam, jellies and marmalade					

SUMMARY OF SAMPLES, &c—continued.

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INFORMAL SAMPLES.				FORMAL SAMPLES.						
Number taken.	Number genuine.	Adulterated.		Nature of Sample.	Number taken.	Number genuine.	Adulterated		Number caut'nd.	Informations.
		*Class A.	†Class B.				*Class A.	†Class B.		
26	26	—	—	Lard and compound	91	91	—	—	—	—
38	37	1	—	Lemon cheese and curd.....	2	2	—	—	—	—
199	199	—	—	Margarine.....	22	22	—	—	—	—
1256	1236	15	5	Milk.....	2269	2130	112	27	40	47
—	—	—	—	Do. skimmed	2	2	—	—	—	—
4	4	—	—	Oatmeal and preparations.....	61	61	—	—	—	—
23	23	—	—	Olive Oil	5	5	—	—	—	—
14	12	—	2	Rice and ground rice	271	228	3	40	3	—
—	—	—	—	Self-raising flour	168	168	—	—	—	—
1	1	—	—	Sugar.....	100	100	—	—	—	—
34	34	—	—	Syrup and treacle	1	1	—	—	—	—
—	—	—	—	Tapioca	67	67	—	—	—	—
45	45	—	—	Temperance beverages	1	1	—	—	—	—

SUMMARY OF SAMPLES, &c.—continued.

INFORMAL SAMPLES.			Nature of Sample.	FORMAL SAMPLES.				
Number taken.	Number genuine.	Adulterated. *Class A. †Class B.		Number taken.	Number genuine.	Adulterated. *Class A. †Class B.	Number caut'nd.	Infor- mations
15	15	—	—	4	4	—	—	—
46	33	6	7	3	3	—	—	—
38	25	2	11	—	—	—	—	—
16	14	1	1	—	—	—	—	—
2	2	—	—	17	17	—	—	—
258	248	7	3	276	250	12	14	2
2886	2803	47	36	4779	4553	135	91	68
								52

* Included all samples found to be adulterated to a material extent.
† Included trivial or doubtful cases.
TOTAL NUMBER OF SAMPLES TAKEN=7.665.

ARTIFICIAL CREAM ACT, 1929.

This Act came into operation on the 1st day of June, 1929, and gives the definition of artificial cream as “an article of food resembling cream and containing no ingredient which is not derived from milk except water or any ingredient or material which by virtue of the proviso to sub-section (2) of section two of the Food and Drugs (Adulteration) Act, 1928, may lawfully be contained in an article sold as cream.”

Section (2) gives power to the Food and Drugs Authority to register premises where artificial cream is manufactured or sold.

There are also special requirements regarding the labelling of the receptacle used for the conveyance of artificial cream.

FERTILISERS AND FEEDING STUFFS ACT, 1926.

On 1st July, 1928, the Fertilisers and Feeding Stuffs Act, 1926, which replaced the old Act of 1906, came into operation.

Under it the City Analyst was appointed official Agricultural Analyst, the Chief Food and Drugs Inspector was appointed Inspector, and the three Food and Drugs Inspectors were appointed official samplers.

A certain remuneration was agreed to in respect of the work done under the Act.

Total number of samples submitted during the following six years, 1925 to 1930 :—

1925	...	...	...	...	...	...	30
1926	...	...	...	...	...	...	52
1927	...	...	...	...	...	...	45
1928	...	...	...	...	...	...	69
1929	...	...	...	...	...	...	108
1930	...	...	...	...	...	...	113

RAG FLOCK ACTS, 1911 AND 1928.

There is one factory in which rag flock is manufactured in this district. Four visits have been made and two samples of rag flock have been taken, which were in accordance with the standard of cleanliness required by the rag flock regulations. Twenty-two visits have been made to premises where rag flock was used and three samples were taken, which were in accordance with the regulations.

REPORT OF THE CITY BACTERIOLOGIST, 1930.

During the year 45,923 specimens were examined for the Public Health, Port Sanitary, Water and Baths and Wash-house Departments, as compared with 38,412 specimens for the year 1929.

These specimens may be grouped as follows :—

1. Milk and other foodstuffs.
2. Water.
3. Rats, etc., for possible infection with the bacillus of plague.
4. Material from infectious diseases in man—Diphtheria, Vincent's Angina, Typhoid Fever, Tuberculosis, etc.
5. Venereal Diseases.
6. Material from animals with suspected infection.
7. Other specimens.

The following samples have been examined :—

MILK AND OTHER FOODSTUFFS.

(1) Fresh milks—						
	City Hospitals and other Institutions	...	...	...	...	220
	Maternity and Child Welfare Institutions	...	...	...	...	141
	Milk shops, railway stations, etc.	...	...	...	...	697
					—	1,058
(ii) Fresh cream	...	...	...	...	...	13
(iii) Tinned milks	...	...	...	...	...	23
(iv) Other foodstuffs, shell-fish, tinned and potted meats, etc.						81
						<u>1,175</u>

(i) *Fresh Milks—City Hospitals and other Institutions*—Of the 220 samples examined, 93 shewed no evidence of *B. coli* in 1 c.c., 20 contained *B. enteritidis sporogenes* in 10 c.c., and *B. tuberculosis* was found in 7 samples. A bacterial count was done in 218 samples.

Maternity and Child Welfare Institutions—Of the 141 samples examined 44 shewed no evidence of *B. coli* in 1 c.c., 11 contained *B. enteritidis sporogenes* in 10 c.c.s., and *B. tuberculosis* was found in 2 samples. A bacterial count was done in 101 samples.

Milk shops, railway stations, etc. : Of the 697 samples examined 141 shewed no evidence of *B. coli* in 1 c.c., 87 contained *B. enteritidis* sporogenes in 10 c.cs., 2 contained streptococci, and *B. tuberculosis* was found in 48 samples. A bacterial count was done in 366 samples.

Thus, in 1,058 samples of milk, 57 were found to be infected with *B. tuberculosis*. This, at first sight, appears a large proportion, but many of the samples were in duplicate or triplicate, and it is impossible to draw any conclusions from these figures as to the percentage of tuberculosis in the milk supply of the city.

(ii) *Fresh Cream*—Of the 13 samples of fresh cream examined, none call for any special comment.

(iii) *Tinned Milks*—Of the 23 samples of tinned milk and tinned cream examined, 19 were sterile, and the remainder shewed no organisms of the food-poisoning group.

(iv) *Other Foodstuffs*—There were 81 samples of other foodstuffs examined, as follows :—

(a) Tinned and potted meats, etc.	...	...	7
(b) Shell fish	...	...	19
(c) Ice cream	...	...	37
(d) Other foodstuffs	...	...	18

None of these samples call for any special comment.

WATER.

There were 590 samples of water examined, viz. :—

Daily samples	...	...	...	...	546
Monthly samples—					
Prescot : Vyrnwy	...	...	...	13	
Rivington	...	...	...	13	
George Holt Well	...	...	...	7	
John Holmes Well	...	...	...	7	
Dudlow Lane	...	...	...	1	
				—	41
Special samples	...	...	...	..	3
					—
					590
					—

The water throughout the year, whether from the wells or from Prescott, was satisfactory from a bacteriological standpoint.

RATS, ETC.

During the year 3,737 rats from warehouses, etc., within the city were examined, and no evidence of the bacillus of plague was found in any of them.

MATERIAL FROM INFECTIOUS DISEASES IN MAN.

(a) Swabs from suspected cases of diphtheria :—

	Positive.	Doubtful.	Negative.	Total.
City hospitals	2,421	7	13,972	16,400
Maternity and child welfare institutions	—	3	66	69
Private practitioners, etc.	902	6	4,569	5,477
	<u>3,323</u>	<u>16</u>	<u>18,607</u>	<u>21,946</u>

(b) Swabs from suspected cases of Vincent's Angina :—

	Positive.	Negative.	Total.
City hospitals	2	15	17
Private practitioners, etc.	28	39	67
Maternity and child welfare institutions	2	—	2
	<u>32</u>	<u>54</u>	<u>86</u>

(c) Blood from suspected cases of typhoid fever, dysentery and food-poisoning :—

	Positive.	Negative.	Total.
City hospitals	47	67	114
Private practitioners, etc.	17	40	57
Maternity and child welfare institutions	—	2	2
	<u>64</u>	<u>109</u>	<u>173</u>

(d) Urine and fæces from suspected cases of typhoid fever, dysentery and food-poisoning :—

	Posi- tive.	Doubt- ful.	Nega- tive.	Total.
City hospitals	49	1	318	368
Maternity and child welfare institutions	—	—	3	3
Private practitioners, etc.	2	—	36	38
	<u>51</u>	<u>1</u>	<u>357</u>	<u>409</u>

(e) Sputa, etc., from suspected cases of tuberculosis :—

	Positive.	Negative.	Total.
City hospitals	37	165	202
Maternity and child welfare institutions	2	10	12
Private practitioners, etc.	256	1,470	1,726
	<u>295</u>	<u>1,645</u>	<u>1,940</u>

(f) *Anthrax infection*—66 specimens of tissues, swabs, etc., were examined, chiefly for the city hospitals, and *B. anthracis* was found in four cases.

(g) *Vaccines*—15 vaccines were prepared from specimens sent chiefly from the city hospitals.

(h) *Miscellaneous*—1,265 specimens of tissues, secretions, fluids and other specimens were examined, chiefly for the city hospitals, and maternity and child welfare institutions.

VENEREAL DISEASES.

The following specimens have been examined from persons known, or suspected, to be suffering from venereal diseases :—

	Positive.	Doubtful.	Negative.	Total.
Clinics —				
Wassermann reactions	936	249	4,207	5,392
For Gonococci	20	2	399	421
For Spirochoetes	—	—	2	2
	<u>956</u>	<u>251</u>	<u>4,608</u>	<u>5,815</u>
Hospitals, Private Practitioners, &c.				
Wassermann reactions	843	135	3,021	4,009
For Gonococci	117	15	702	834
For Spirochoetes	—	1	12	13
Still-born infants	—	1	84	85
For ophthalmia neonatorum ...	7	1	40	48
	<u>967</u>	<u>153</u>	<u>3,869</u>	<u>4,989</u>
Grand Totals ...	1,923	404	8,477	10,804

As the majority of these specimens were sent from patients suspected to be suffering from venereal disease, or undergoing treatment, several specimens of blood may have been sent from one case at different times, and, therefore, no percentage as to positive and negative results can be obtained from these figures.

None of the still-born infants examined shewed positive evidence of Syphilis.

The cases of Ophthalmia Neonatorum shewing positive evidence of Gonococci amount to over $14\frac{1}{2}$ per cent.

MATERIAL FROM ANIMALS WITH SUSPECTED INFECTION.

For Tuberculous infection—Of the 13 specimens of tissues, etc., examined 2 were tubercular and 11 shewed no evidence of infection.

For Anthrax infection—There were 49 samples of shaving brushes, bristles, wool, tissues, etc., examined, and no evidence of Anthrax infection was found in any sample.

Two disinfectants and five samples of swimming bath water were examined for the Baths and Wash-houses Department. None of these call for any special comment.

From the following comparative summary it will be noticed that there is an increase of over 7,500 in the number of specimens examined this year compared with last year, and when it is borne in mind that about 10 years ago the total number of specimens examined was approximately 20,000 (i.e., less than one-half the present total) it proves quite definitely that the facilities of the laboratories are being increasingly taken advantage of by the hospitals, and particularly by the private practitioners..

COMPARATIVE SUMMARY OF EXAMINATIONS FOR 1929 AND 1930.

Description of specimens.	1929	1930
Milks and other food-stuffs	1,308	1,182
Waters	416	592
Rats, Mice, etc	8,681	7,310
Material from infectious diseases in man:—		
Swabs for diphtheria	14,962	21,946
Do. for Vincent's angina	62	86
Blood for typhoid fever, etc.	133	173
Urine and faeces for typhoid fever, etc.	150	409
Sputa, etc., for tuberculosis	1,790	1,940
Anthrax infection	77	66
Vaccines	16	15
Miscellaneous	1,008	1,265
Venereal diseases	9,694	10,804
Material from animals with suspected infection:—		
Tissues, etc., for tuberculous infection	14	13
Hair, shaving brushes, etc., for anthrax infection	100	115
Other specimens	1	7
TOTALS ...	38,412	45,923

CLEANSING AND SCAVENGING.

The City Engineer has kindly supplied the following information, which indicates the operations carried out by the cleansing staff under his control :—

The work of the department consists of cleansing and watering the 660 miles of streets within the city, together with their back passages, the periodical emptying of ashbins, street gullies, street and court bins and ashpits, and the disposal of the refuse collected therefrom, etc. During 1930 the quantity of domestic and trade refuse collected and received was approximately 393,011 tons, and the quantity disposed of was approximately 433,950 tons, the latter figure including 24,532 tons of clinker residue and fluedust from destructors. The quantity dealt with per working day was 1,413 tons.

The whole of the 660 miles of streets with their passages, with the exception of a few on the outskirts of the city, are swept weekly, the principal streets, and streets in congested areas, receiving constant daily attention. In addition, certain streets and passages are washed by hose pipe. During 1930 street washing was carried out as follows :—

- 34 streets washed once a week ;
- 1 street washed twice a week ;
- 1 street washed daily ; and
- 158 streets washed as occasion required.

Four motor sweeping machines are employed regularly, each of which sweeps approximately 38 miles of roadway nightly.

On Sunday mornings a number of the principal streets and streets in congested areas are cleansed, and all street and court bins emptied.

During 1930 approximately 51,600 tons of street sweepings were collected and disposed of as manure and top dressing.

In connection with street watering upwards of two and a half million gallons of water were distributed during the season, in addition to the large quantity used for street washing.

A second mechanical gully emptier, which performs the work in a more efficient and sanitary manner, commenced work during the year.

750,368 square yards of carriageway were treated with dust-laying compositions, of which 54,199 square yards were in Sefton and Newsham Parks.

The frequent flushing of trough water closets is a sanitary measure, this type of closet being provided principally in the more densely populated areas of the city. The number of trough water closets in existence on 31st December, 1930, was 608.

There are 33 underground urinals with 310 stalls and 139 overground urinals with 563 stalls in Liverpool, which are cleansed and disinfected at least once daily. During the summer season a large number of urinals and trough water closets are cleansed and disinfected twice daily. All private, domestic and office drains are flushed regularly by the City Engineer's staff.

An improved type of fixture ash-bin was first supplied to Liverpool premises in 1898, and at the end of 1930 the number of bins in use of this type was approximately 89,500, and the number of ashpits has been reduced from 65,000 to approximately 4,600. In addition, more than 89,000 loose bins had been supplied. In the year 1900 an improved sanitary ashbin was introduced for the use of courts, some of which have been removed owing to property being demolished. The number in use at the end of the year was 1,253, which are emptied daily. Ashbins and ashpits on domestic premises are emptied approximately once weekly. The bell-cart service provides for the daily removal of domestic refuse from shops, business premises, and dwelling houses, where no provision can conveniently be made for the storage of this description of refuse.

ASHPITS.

To assist in the abolition of ashpits within the city, the Health Committee applied for and obtained special powers under the Liverpool Corporation Act, 1927, Section 157, which are as follows:—

Section 467 (Regulation Dustbins) of the Act of 1921 is hereby repealed and the Corporation may by notice in writing require the owner or occupier of any dwelling-house, warehouse or shop to

provide and maintain in proper order and condition galvanized iron dust-bins in lieu of ash-pits or ash-tubs or other portable receptacles for refuse, and such bins shall be of such size and construction as may be approved by the Corporation, and any owner or occupier who fails within fourteen days after notice given to him to comply with the requirements of the Corporation shall for every such offence be subject to a penalty not exceeding five shillings. Provided that in any case where the Corporation under this Section require a galvanized iron dust-bin to be provided in lieu of any ash-pit or ash-tub or other portable receptacle for refuse in use on the 4th day of August, 1905, which at the time such requirement is made is of suitable size and construction and in good order and condition, the Corporation shall pay the cost of providing such galvanized iron dust-bin.

Several applications have already been received by owners who desire to take advantage of this section of the provisions. Up to 31st December, 1930, 1,200 ashpits had been abolished under these powers.

Horse middens are emptied weekly, and more often if required, and abattoir garbage is removed nightly, 4,168 tons of abattoir garbage being removed during 1930.

All ashpit and ashbin refuse is emptied direct into the carts and motors, and all loaded carts and motors traversing the streets are covered.

The refuse collected is disposed of by burning at three destructors, by disposing at sea, by sale to farmers, and by tipping for reclamation of land, operations being carried out in accordance with suggested regulations of the Minister of Health, to comply with which 27,191 tons of soil were used for covering tips during the year.

During the year, 70,712 tons were burned at the destructors, 48,718 tons were deposited at sea by hopper barge, 27,241 tons were sold to farmers, etc., and 265,333 tons were otherwise disposed of at tips and for agricultural purposes, etc. In addition, approximately 20,545 tons of clinker residue from destructors were used almost entirely in the construction and maintenance of roads and tramways and in the manufacture of mortar and concrete slabs, etc.

HOUSING.

REMOVAL OF INSANITARY PROPERTY.

The following summary indicates the number of houses which have been dealt with from the year 1865 to 1930 (inclusive) :—

Date	Powers	Approximate number of houses dealt with
1865 to 1904	The Liverpool Sanitary Amendment Act, 1864.	6,300
1905 to 1931	HOUSING ACTS.	
	(a) Unhealthy Areas (25)... ..	3,798
1906	(b) As the result of a circular letter directing the owner's attention to the insanitary condition of the property	1,020
1906 to 1930	(c) Closing Orders	1,760

UNHEALTHY AREAS DEALT WITH.

Date of Representation.	Area.	Population.	Houses.	Dwellings erected.
July, 1901	Hornby Street	2,431	534	455
,, 1901	Upper Mann Street	743	176	88
Sept. 1906	Burlington Street	607	144	114
Mar. 1907	Beau Street	532	128	...
,, 1907	Bevington Street	1,154	295	224
,, 1907	Holly Street	563	124	78
,, 1907	Frank Street	627	127	68
,, 1907	Grafton Street	304	70	60
Aug., 1907	Saltney Street	88	68	48
June, 1912	Prince Edwin Street	737	187	60
,, 1912	Rathbone Street	445	128	...
,, 1912	Mason Street	301	107	28
	Carried forward	8,532	2,088	1,223

UNHEALTHY AREAS DEALT WITH—Continued.

Date of Representation.	Area.	Population.	Houses.	Dwellings erected.
	Brought forward ...	8,532	2,088	1,223
June 1912	Saltney Street ...	415	93	48
„ 1912	Blenheim Street ...	230	48	18
„ 1912	Penrhyn Street ...	488	116	26
„ 1912	Gore Street ...	78	76	24
„ 1912	Sparling Street ...	153	33	16
„ 1912	Jordan Street ...	...	...	31
June, 1922	Burlington Street ...	1,407	307	In progress
„ 1922	Hopwood Street ...	343	52	30
Jan., 1923	Great Richmond Street ...	148	35	In progress
„ 1923	Rankin Street ...	476	96	46
Dec., 1925	Pitt Street ...	92	22	48
Jan., 1928	Queen Anne Street ...	2,876	434	...
Dec., 1929	Gerard Street ...	3,430	398	...
	TOTAL ...	18,668	3,798	1,510

In addition to the above, a large number of insanitary houses have been demolished by owners for the purpose of private improvement.

CLOSING ORDERS.

In view of the shortage of dwellings no Closing Orders were made under the Housing Acts during years 1916 to 1920 and 1922 to 1930 inclusive.

The approximate number of insanitary houses existing on the 1st January, 1931 (including added areas) was as follows:—

Number of Courts	...	...	...	...	245
Number of Court Houses	...	...	...	...	1,334
Approximate number of Front Houses contiguous to court houses	...	...	...	...	490

QUEEN ANNE STREET UNHEALTHY AREA.

On November 23rd, 1928, the Ministry of Health made an Order confirming the above Area as an Improvement Scheme, but a writ was subsequently issued calling upon the Ministry of Health to show cause why the aforementioned Order should not be quashed. The matter came before the King's Bench Divisional Court, and it was subsequently taken to the House of Lords, the final Judgment being given on 23rd March, 1931, and the Report as it appeared in *The Times* on the 24th March, is as follows:—

HOUSE OF LORDS.

MINISTER OF HEALTH V. THE KING : EX PARTE YAFFE.

ORDER CONFIRMING IMPROVEMENT SCHEME HELD VALID.

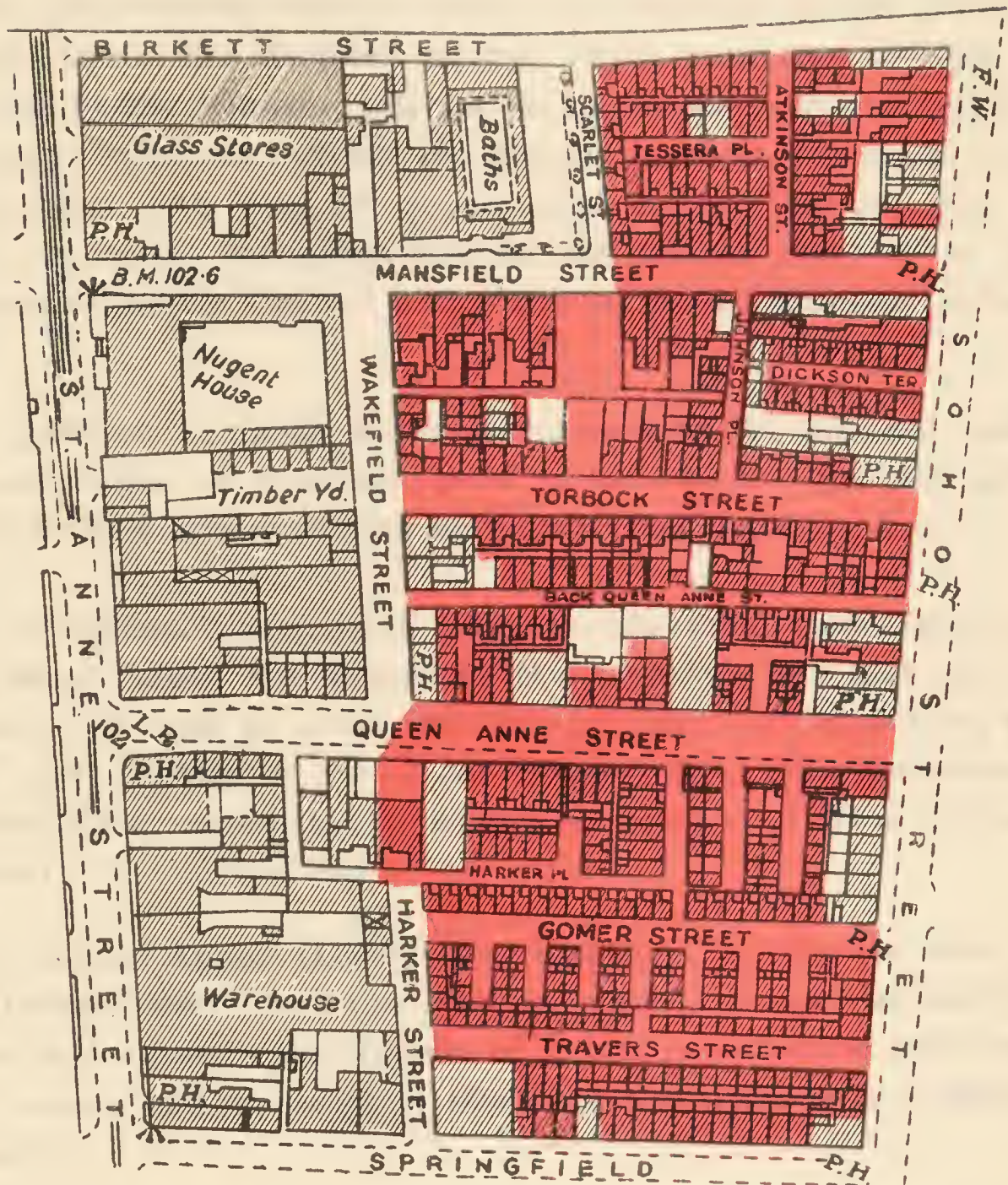
*Before Lord Dunedin, Lord Warrington of Clyffe, Lord Tomlin,
Lord Thankerton, and Lord Russell of Killowen.*

The House, by a majority, allowed this appeal by the Minister of Health from an order of the Court of Appeal (46 *The Times* L.R. 373) setting aside an order of the Divisional Court (46 *The Times* L.R. 178) whereby a rule *nisi* for *certiorari*, calling on the Minister of Health and the Liverpool Corporation to show cause why an order of the Minister dated November 23, 1928, confirming an improvement scheme known as the Liverpool (Queen Anne Street) Improvement Scheme, 1928, should not be quashed, was discharged. The Court of Appeal ordered that the writ of *certiorari* should go to the Minister of Health to bring up the confirmation order to be quashed as in excess of his jurisdiction.

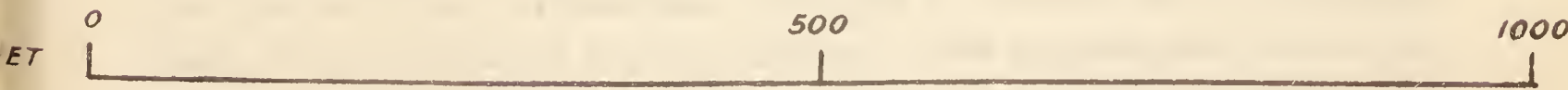
The rule *nisi* had been granted at the instance of Mr. Yaffe, an estate agent, of Liverpool. It was alleged on his behalf that the Minister had no jurisdiction to make the order of November 23rd, 1928, for the following reasons:—The scheme as submitted to the Minister was not an improvement scheme within Part II of the Housing Act, 1925, because it contained no concrete proposals for the development of the land within the Queen Anne Street area after acquisition by the Liverpool Corporation. It did not provide for the re-arrangement or reconstruction of any of the streets and houses in the area. It provided that land within the area might be sold, leased, or otherwise disposed of as the Council might think fit, and the estimates which accompanied

QUEEN ANNE STREET UNHEALTHY AREA.

HOUSING ACT 1925.



Total number of houses = 434
Total population = 2,876



Scale $\frac{1}{2500}$

(Survey 1927.)

QUEEN ANNE STREET UNHEALTHY AREA

HOUSING ACT 1936



SEA - Street number of house - 100
UNH - Unhealthy area

the scheme were insufficient. The local inquiry which the Minister caused to be held on May 1st, 2nd and 3rd, 1928, was void, because there was no improvement scheme within the meaning of the Act to be inquired into. The modified scheme, which purported to have been confirmed by the Minister, was not an improvement scheme within the Act, since it did not indicate the manner in which the lands were to be developed, and was not accompanied by any lay-out plan. A clause purporting to incorporate in the scheme plans to be made subsequently by the Council and approved by the Minister was *ultra vires*.

The question of public importance raised in the case was whether the confirmation of a scheme—good or bad—by the Minister gave it statutory effect and prevented the Court from inquiring into it.

The Divisional Court, by a majority (the Lord Chief Justice and Mr. Justice Talbot, Mr. Justice Swift dissenting), held that where the Minister had made an order *bona-fide* intended and purporting to be made under Section 40 (5) of the Housing Act, 1925, confirming an improvement or reconstruction scheme, no question of *ultra vires* could be raised in a Court of law.

The Court of Appeal (Lord Justice Scrutton, Lord Justice Greer, and Lord Justice Slesser) held that where a scheme was unauthorised by the Act an order made by the Minister of Health in purported confirmation of the scheme had no statutory effect and was liable to be quashed by *certiorari*.

The Attorney-General (Sir William Jowitt, K.C.), the Solicitor-General (Sir Stafford Cripps, K.C.), and Mr. W. Bowstead appeared for the Minister of Health; Sir Leslie Scott, K.C., Mr. H. A. Hill, and Mr. T. Worthington Naylor for the respondent; Mr. Cyril Radcliffe appeared for the Liverpool Corporation.

Lord Dunedin, in the course of a long and exhaustive judgment, said that the *certiorari* proceedings were put in motion by Mr. Abraham Yaffe, the proprietor of a house situated in the improvement area which, in the plan embodied in the scheme, was coloured pink, which meant that the buildings were considered insanitary and that he would only be paid for the site value. The ground of his complaint was, shortly,

that there was not a scheme put forward in conformity with the requirements of the Act, and that consequently the Minister had nothing to confirm. And further it was eventually said that when he did confirm, with modifications, what was put before him, there still was no scheme which conformed to the Act, so that the so-called confirmation of the Minister was *ultra vires*, null, and ought to be quashed.

The answer of the Minister and the local authority was twofold. First, they said that the scheme, such as it was, having been confirmed by the Minister, his order by virtue of Section 40 (5) had the position of an Act of Parliament and could not be inquired into by the Judges in *certiorari* proceedings. Secondly, it was said, not originally in the first Court, but in the Court of Appeal, (a) that the scheme was good as put before the Minister, and (b) that, if there was any blot in it, that blot had been cured by the Order of the Minister, so that the scheme, as it left his hands, was good, and in conformity with the Act.

Before the Divisional Court it was held by a majority that the first argument was good. The order was protected as having the authority of an Act of Parliament. Mr. Justice Swift dissented. He did not need to go into the second point because, at that time, the Attorney-General admitted that the scheme, as presented, was bad. When the case came before the Court of Appeal, the Attorney-General withdrew that admission, but of course still maintained his first point. On the first point, the Court of Appeal reversed the judgment of the Divisional Court, and on the second point they held that the case was practically ruled by *Rex v. The Minister of Health, ex parte Davis* (45 *The Times* L.R. 345; (1929) 1 K.B. 619) and held the scheme bad.

The first question, and it was a very important and far-reaching one, was, therefore, as to the effect of Section 40 (5). Had it the effect of preventing any inquiry by way of *certiorari* of an Order confirmed by the Minister? It was evident that it was inconceivable that the protection should extend without limit. If the Minister went out of his province altogether, if, for example, he proposed to confirm a scheme which said that all the proprietors in a scheduled area should make a *per capita* contribution of £5 to the municipal authority to be applied by them for the building of a hall, it was repugnant to commonsense that the Order would be protected, although, if there were an Act of Parliament to that effect, it could not be touched.

After explaining and distinguishing the case of *Chartered Institute of Patent Agents v. Lockwood* (10 *The Times* L.R. 527 ; [1894] A.C. 347), which he regarded as the high-water mark of inviolability of a confirmed order, he said that he thought that the Court of Appeal was right in refusing to decide the case on the ground taken by the Divisional Court.

Then arose the second question, and it must be apparent that the limits were narrow within which objection might be found. The respondent had here not got his mouth shut, as would have been the case if the argument which prevailed before the Divisional Court had been accepted. But he could only object with success if he could show that the scheme was a scheme which was not such a scheme as was contemplated and provided for by the Act. Sir Leslie Scott, for the respondent, was very anxious on that topic to put his argument in two ways. He said that the scheme, as ultimately approved, was not in accordance with the Act. But he also said, and that was the argument that prevailed in the Court of Appeal, that even if that were not so, at least the scheme as sent up to be approved was not in accordance with the Act, and that that being so the Minister had no right to touch it.

That latter argument depended to a great extent on what view was taken of the expression used in Section 40 (3) of the Act. The section said that the Minister had to consider whether the carrying out of the scheme "either absolutely or subject to conditions or modifications" would be beneficial, and, having so considered, he then might, by Order, confirm the scheme "with or without such conditions or modifications, so, however, that no addition shall be made to the lands proposed in the scheme to be taken compulsorily."

The last words of limitation seemed to him (his Lordship) to show that otherwise the Minister was unfettered in the conditions which he might impose, or modifications he might make. He did not, of course, suggest that if there was something sent up which was really not a scheme at all the Minister could confirm it. He was not the author of the scheme; he was the critic and the finisher of it. In particular he might remove any blot which he found in it as presented, and the word "blot" included any provision which, if left untouched, would not be in conformity with the Act.

To turn now to the objections urged. They were really two in number. The first was that the scheme, as submitted to the Minister, did not contain a lay-out plan, and the second was that in clause 5 of the scheme as originally presented, the Council was given untrammelled powers, a defect which the Minister had no right to cure.

As to the first objection, the Court of Appeal largely proceeded on the case of *ex parte Davis (supra)*. On the merits, it was apparent that that case was utterly different from this. In that case the improvement scheme consisted in a power to take an area on the ground that it was insanitary, and then to leave the municipality completely unfettered as to what it was to do with the ground taken. All that the Council was bound to do was to clear the area of buildings and then "the whole of the cleared area shall be sold, leased, or disposed of as the Council may think fit," any application to the Minister of Health to devote it to purposes approved of by him being a mere alternative at the will of the Council. That that was no scheme under the Act was, he thought, an inevitable conclusion. But it differed absolutely from the scheme in this case. Taking this scheme as authenticated by the Corporation seal, it was apparent that the ground was to be used for a building scheme, that the cost of laying out the new streets and buildings was stated to be £261,000, and it was further stated that there was to be no surplus land.

The real objection which was urged was that it was a fatal defect in the scheme that it did not, as submitted to the Minister, include the lay-out plan. The expression "a lay-out plan" was nowhere to be found in the statute. What the objector urged was founded on the word of 35 (1) (b), "A scheme (hereinafter referred to as an improvement scheme) for the rearrangement and reconstruction of the streets and houses within the area," and the argument was that that meant that one essential of the scheme was a plan for reconstruction. What was a plan for reconstruction? That it was not such a plan as could be put in the builder's hands on which he could proceed without further details was apparent, and was indeed excluded by the very words of the demand—"a lay-out plan."

His (Lord Dunedin's) view of the matter was that there was no cut-and-dried form in which a scheme must be propounded. The essentials

were that it should clearly show the area which, in its present condition, was treated as the unhealthy area, and that, further, it should show that the municipality had *bona-fide* proposals in sight, but that all particulars, and the precise form that reconstruction might take, were left over for the decision of the Minister, who could impose such conditions as he desired.

Applying that view to the facts in the present case, so far from finding something which resembled Davis's case (*supra*), he found a very definite proposal. The scheme, as sent to the Minister, not only clearly showed that the cost of reconstruction had been minutely gone into, by the mention of the figure £261,500, but also that the whole area was going to be used for reconstruction by the fact that "no surplus land" was expressed, and it was accompanied, when sent, with all the reports, including the report of the Housing Director, which really gave every detail.

The objection finally resolved itself into this: that the book of plans only included the plan of the area, with the properties marked pink and blue, and did not include the plan marked in the report which showed the general lay-out of the new buildings, a plan which mentioned as it was, could have been asked for by the Minister, and which, as a matter of fact, was sent to and seen by the official sent down to conduct the inquiry and report to the Minister what he should do. It was clear, therefore, that the Minister was fully aware of the general scheme as to how the cleared area was to be dealt with when he granted the confirmation.

As confirmed, the scheme seemed to him (his Lordship) unassailable. The area was delimited; the pink and blue colourings were settled. Then clause 5, said:—

The lands in the area shall, subject to the provision of any necessary streets and approaches, be used for the purposes of re-housing.

And then, as regarded the streets, the Minister kept a firm hand on them, for the Council could only lay them out in accordance with plans to be approved by the Minister.

On the whole matter, he had come to the conclusion that the scheme, as confirmed, was a good scheme, and that the appeal should be allowed, and that the judgment of the Divisional Court, although on very different grounds, should be restored.

He confessed that he was glad to be able to reach that result. No one could possibly look at those proceedings without being convinced that they were a genuine scheme for sweeping away an insanitary area and replacing the old by new and sanitary houses. There was no trace of any oblique motive.

The appellant must have his costs in this House and in the Court of Appeal.

The other noble and learned Lords, with the exception of Lord Russell of Killowen, agreed.

Lord Russell differed. In his opinion it was impossible to say that documents which contained no indication of any proposed lay-out, and which disclosed no unequivocal intention to re-arrange any streets or to rebuild any houses constituted in any sense "a scheme for the re-arrangement and reconstruction of the streets and houses within the area or of some of such streets or houses." If he was right in that, there never was any "scheme" made or prepared by the local authority, and there was nothing for the Minister to confirm.

A plan of the above unhealthy area is shown facing page 246.

GERARD STREET CLEARANCE AREAS.

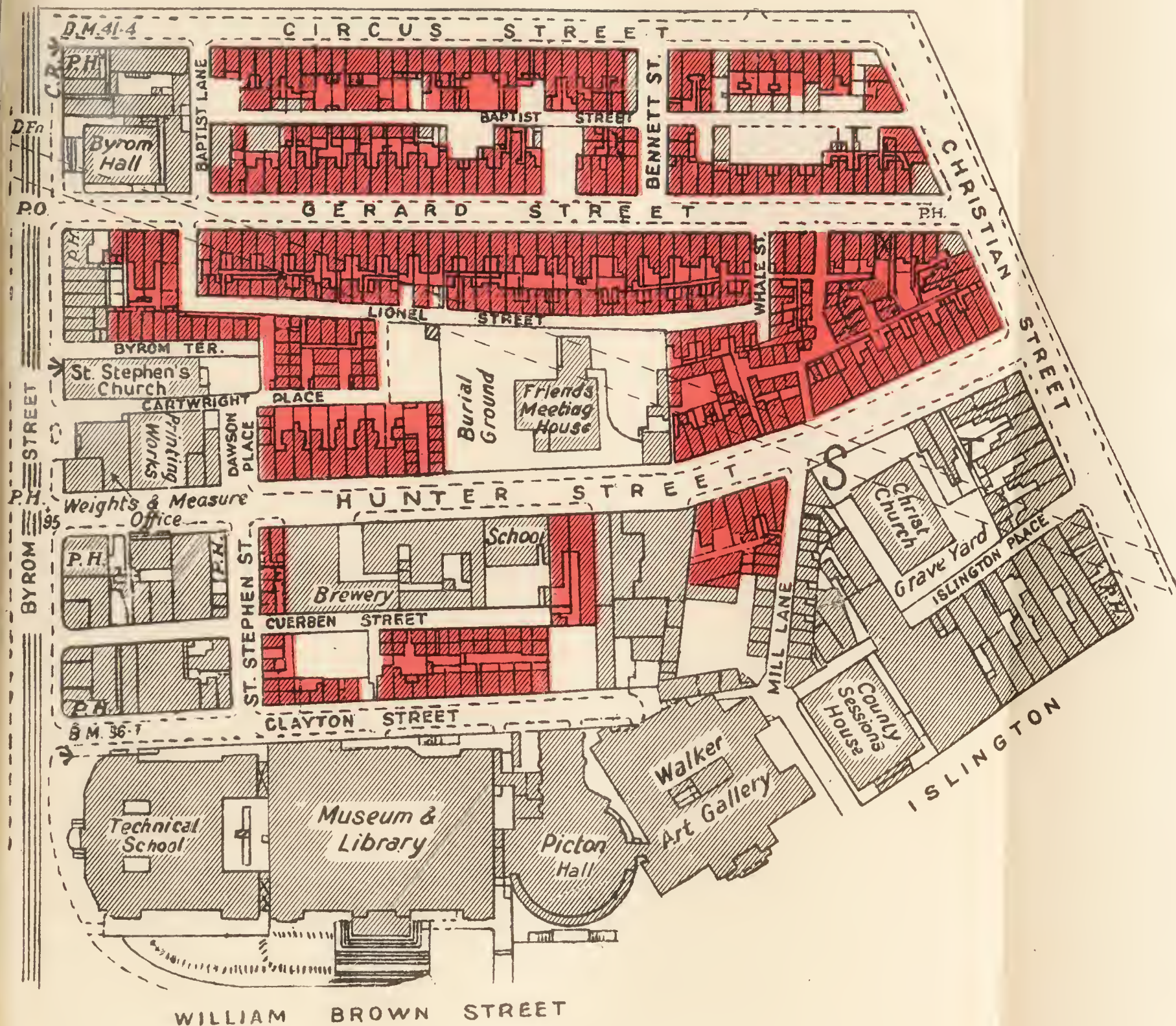
In the Annual Report for 1929 reference was made to the Official Representation of the Medical Officer of Health, dated 5th December, 1929, in respect to the above unhealthy area.

Owing to new legislation embodied in the Housing Act, 1930, a further Official Representation was made by the Medical Officer of Health, and subsequently approved by the City Council.

A public Inquiry was held on 3rd March, 1931, and the final decision of the Minister of Health is awaited.

GERARD STREET CLEARANCE AREAS.

HOUSING ACT 1930.



Total number of houses = 398
Total population = 3,430

0 500 1000
FEET

Scale $\frac{1}{2500}$

(Survey 1927)

The accompanying plan of this unhealthy area indicates the boundaries, the principal statistics in respect to the whole of the area being as follows :—

In this area there are seventeen streets, and 398 houses. Nine streets come within the terms of Section 1 (1), Housing Act, 1930. They are narrow, less than 30 feet in width, and are so arranged as to impede the free circulation of the air in or about the dwellings. The nine streets referred to are as follows :—

Baptist Street,
Baptist Lane,
Gregory Place,
Whale Street,
Lionel Street,
Byrom Terrace,
Cartwright Place,
Cuerdon Street,
Mill Lane.

The passageways at rear of the dwellings are narrow, in several instances the boundary walls slightly overhang, and owing to the narrow passageways the removal of house refuse is attended to with difficulty.

Attention was directed to the large number of tenement houses in this area, not originally intended for the purpose of providing separate dwellings, but, which the pressure of population has forced into that service, without any alteration to meet the changed usage.

The common passage and staircase and the well of the staircase with its foul atmosphere derived from the rooms opening into it, and the dwelling rooms with their doors open destroy all privacy.

No accommodation is provided inside or out to deal with domestic washing, which is dried in the living room or lobby in which there is no sun, and where fresh air cannot blow.

A map of the city dated 1821-1823 indicates that the houses were built over 100 years ago, and having regard to the large number of people who occupy many of these houses the amount of wear and tear

Narrowness
or bad
arrangement
of streets.
Section 1,
Sub-section(1)

Tenement
houses.

Age of
Property

is above normal, and it is not surprising to find that the houses are in a bad state of disrepair.

The effect of bad housing.

The phthisis death rate in this area is twice as high as the phthisis death rate for the entire city; the infantile mortality rate in this area is almost double that of the city rate, the mortality rate from zymotic diseases is five times as high as that of the city, the mortality rate from respiratory diseases is almost three times that of the city, and the death rate from all forms of tuberculosis (including phthisis) is more than twice that of the city rate.

Vital Statistics.

VITAL STATISTICS.—In respect to the whole city, Gerard Street area, and Corporation tenements, for seven years—1923 to 1929 :—

	Entire City.	Gerard Street Area.	Corporation Tenements.
Population	872,802	3,436	14,572
Average Annual General Death Rate (per 1,000)	13·9	28·40	18·20
Average Annual Phthisis Death Rate (per 1,000)	1·23	2·99	1·64
Average Annual Infant Mortality Rate (per 1,000 Births)	98·43	171·37	130·56
Average Annual Birth Rate (per 1,000) ...	23·14	48·60	32·85

VITAL STATISTICS—for seven years—1923 to 1929 :—

	Entire City.	Gerard Street Area.
Average Annual Death Rate from the seven principal Zymotic Diseases	0·82	4·28
Average Annual Death Rate for Respiratory Diseases ...	3·48	9·99
Average Annual Death Rate from all forms of Tuberculosis (including phthisis)	1·48	3·04

Bronchitis and Pneumonia are closely associated with damp and insanitary houses.

The most eloquent testimony to the fact that houses grouped together without adequate ventilation and devoid of sunlight are insanitary, is the high death rate, and as might be expected, the most sensitive sections of the population are the greatest sufferers, namely, child life.

Death rates do not indicate the incapacity for work, extent of sickness, suffering, and invalidity of the sick.

Every year the houses in this area are systematically visited by the sanitary staff, and where nuisances have been found to exist the usual notices have been served upon the owners. The streets and passageways are systematically cleansed, sewers and private drains regularly flushed, and in addition baths and wash-houses, infant welfare centres and clinics have also been provided in close proximity to the area.

Having regard to the unsatisfactory conditions in this area, it is not surprising to find that disease flourishes, poverty is prominent and sickness is rife, there is also marked evidence of lessened cleanliness, depression, lack of enthusiasm in the home, and the occupiers frequently complain of the conditions under which they are living.

There is no doubt that density leads to a high death rate, the Density. greater proximity of man to man, the greater is the mortality, this statement is confirmed by a study of vital statistics in respect to cities and towns.

The total acreage of these Clearance areas, including streets and Density of passageways, is approximately $8\frac{1}{2}$ acres, there are 398 houses in the Houses. area, the total number of houses per acre being 47.

The total area of the city is 24,772 acres, the total number of inhabited houses is 183,825, or approximately 7 houses per acre.

In December, 1930, a house-to-house census was taken of the Clearance Density of areas, the total population being 3,430 persons, equal to 403 persons Population. per acre, 8·6 persons per house, as compared with the following :—

(1) Population per acreage of the entire city	...	...	35·2
(2) Population of highest district (Everton)	...	...	190·5
(3) Population of the lowest district (Woolton)	...	...	2·8

HOUSING ACT, 1930.

(Section 25 (2).)

In accordance with the provisions of the Housing Act, 1930, the Medical Officer of Health submitted the following general statement of the measures proposed to be taken during the next five succeeding years in respect to the removal of insanitary property.

A UNHEALTHY AREAS PREVIOUSLY SCHEDULED BUT NOT FINALLY DISPOSED OF.

1. SALTNEY STREET AND DUBLIN STREET.

With the exception of eight houses, which have been demolished in courts Nos. 1 and 2, Saltney Street, nothing further has been done.

The Confirming Order is dated 10th October, 1924.

2. BLENHEIM STREET AND SILVESTER STREET.

The whole of the property abutting on Silvester Street, and a portion of St. Augustine Street still remains to be dealt with.

The Confirming Order is dated 10th October, 1924.

3. BEAU STREET AREA.

The land and premises in this area have been acquired and the property demolished, but in view of the proposed new road, the question of rebuilding on a portion of this area is in abeyance.

The Confirming Order is dated 23rd October, 1908.

4. RATHBONE STREET AREA.

There still remain 23 houses to be demolished on this area, of which 16 are occupied and 7 unoccupied and derelict.

The Confirming Order is dated 1st August, 1913.

In 1924 an application was made by the Corporation asking the Ministry for their consent to a variation of the Order.

5. BURLINGTON STREET AREA.

The work in connection with the removal of unhealthy dwellings and the erection of new dwellings is now in progress, 132 houses are still to be demolished.

The Confirming Order is dated 11th January, 1924.

6. QUEEN ANNE STREET AREA.

The Minister of Health has made a Confirming Order, dated 23rd November, 1928, in respect to this area, and the final decision of the House of Lords is referred to on page 246.

7. GERARD STREET AREA.

The Official Representation has been accepted by the City Council with a view to a Clearance Order being made.

The Medical Officer of Health would recommend that in regard to these unhealthy areas, which have been previously scheduled, steps should be taken so that they may be finally disposed of.

B UNHEALTHY AREAS IN RESPECT OF WHICH NO PROCEEDINGS HAVE AS YET BEEN TAKEN.

These areas have from time to time been considered by the Housing Committee, and in March, 1921, the Housing Committee resolved to take proceedings in respect to each area, but on April 6th, 1921, the proceedings of the Housing Committee in respect to all these unhealthy areas were, by permission of the Council, withdrawn.

Unhealthy Area						No. of Houses	Approximate Population
1.	Bancroft Street	...	...	...	...	82	401
2.	Comus Street	...	...	...	...	71	189
3.	Lawrence Street	...	...	...	...	65	329
4.	Leeds Street	...	...	...	...	34	167
5.	Mount Vernon View	...	...	...	...	56	306
6.	Roscoe Lane	...	...	...	...	98	531
7.	Slade Street	...	...	...	...	104	459
8.	Whitley Street	...	...	...	...	118	611
						628	2,993

The mortality rates in respect to each of the above areas will be found in the Medical Officer of Health's Report for the year 1920.

The number of houses and population are taken from this Report.

The Medical Officer does not consider that all the houses in the areas are insanitary, but when further proceedings are contemplated, the plans will be brought up to date.

C

IMPROVEMENT AREAS.

There are approximately 900 unhealthy dwellings of the worst type mainly situated in courts.

In these cases proceedings might be taken under Sections 7 and 8 of the Housing Act, 1930, and the dwellings subsequently demolished. It would be possible to prescribe improvement areas so as to include a large number of these unhealthy dwellings, and cases of overcrowding within the area could also be dealt with.

The remaining dwellings within the area would then be subject to the provision of the Byelaws under Section 8 of the Housing Act, 1930, and would be applicable to any house, whether let in lodgings or occupied by members of one family only.

The obvious difficulty which confronts the Housing Committee in regard to these houses is the question of re-housing the persons who may be dispossessed.

D PROPOSED NEW TENEMENTS IN SOUTH HILL ROAD AND SPEKE ROAD, GARSTON.

At a Meeting of the Housing Committee on September 25th, 1930, it was resolved that an intimation be sent to the Medical Officer of Health directing his attention to the proposed erection of 209 tenements in South Hill Road, and 200 tenements on land in Speke Road, Garston, and that the same will be available for the accommodation of persons who may be dispossessed under the Housing Act.

With regard to this Resolution, the Medical Officer has carefully considered the position, and he proposes when the tenements are erected to submit a number of houses which are, in his opinion, unfit for human habitation, and not capable at reasonable expense of being rendered so fit. Cases of overcrowding in proximity to the proposed tenements will also be brought forward with a view to the applicants being accommodated in the new dwellings.

The following return was included in a report of the Town Clerk submitted to the Housing Committee, and approved by the City Council on 3rd December, 1930.

HOUSING ACT, 1930 (SECTION 25 (2)).

FORM OF QUINQUENNIAL STATEMENT.

A. Estimated production of houses by the local authority during the next five years								13,000
B. Estimated production of new houses of working class type by private enterprise during the next five years—								
(i)	With subsidy under the Act of 1924	...	...	...	...	...	...	Nil
(ii)	Under arrangements made under Section 29 of the Act of 1930	...	...	...	...	...	...	Nil
(iii)	Otherwise	...	...	...	...	...	...	200
TOTAL								13,200
C. Estimated number of new houses to be allocated by the local authority during the next five years to the purposes of the Housing Act, 1930 (i.e., the purposes mentioned in E and F)								3,000
D. Estimated number of new houses to be allocated by the local authority during the next five years to the purposes of the Act of 1924 (i.e., new housing)								10,000
TOTAL								13,000
E. Estimated number of houses to be demolished during the next five years—								
(i)	In clearance areas	...	...	...	...	...	...	628
(ii)	In improvement areas—							
	(a) For opening area	}	...	...	...	...	...	900
	(b) As unfit houses							472
(iii)	Individual houses outside clearance and improvement areas							
TOTAL								2,000
*F. Estimated number of persons to be displaced during the next five years—								
(i)	By any of the processes mentioned in E	...	...	...	...	...	...	10,000
(ii)	To abate overcrowding in improvement areas	...	...	...	...	...	...	1,000
TOTAL								11,000
G. Estimated number of houses to be repaired under Part II of the Housing Act, 1930, during the next five years								10,000

* Only a very rough estimate can be given without a house to house inspection.

PROVISION OF DWELLINGS.

The real barrier in regard to the removal of insanitary houses within the city is the question of replacing the persons who may be dispossessed.

The Ministry of Health has approved of the reports of the Medical Officer of Health in regard to certain unhealthy areas, but in every case it will be necessary to provide suitable accommodation for the persons to be dispossessed prior to the demolition of the existing insanitary houses.

NEW DWELLINGS IN SUBURBS.

In the year 1919 the Housing Committee commenced to erect houses in the suburbs, and up to the present 19,397 houses and 169 flats have been completed, and 1,143 houses are in progress of erection.

The following table gives details relating to the districts where these houses have been erected, and the accommodation provided.

	“ A ” (Non-parlour)		“ B ” (Parlour)		Total.
Elms House Estate ...	252	...	—	...	252
Larkhill Estate ...	476	...	1,794	...	2,270
Fazakerley Estate...	930	...	351	...	1,281
Edge Lane Drive Estate...	560	...	311	...	871
Walton-Clubmoor Estate...	1,516	...	1,659	...	3,175
Springwood ...	224	...	1,247	..	1,471
Partly developed Estates..	—	...	554	..	554
Woolton ...	48	...	—	...	48
Knotty Ash ...	313	...	187	...	500
Highfield Estate ...	—	...	618	...	618
Pinehurst Road Estate ...	281	...	375	...	656
King Street, etc., Garston	76	...	—	...	76
Ronald Street ...	78	...	—	...	78
Norris Green Estate ...	4,555	...	2,757	...	7,312
Dovecot Estate ...	36	...	199	...	235
	9,345	...	10,052	...	19,397

All these dwellings are completed and occupied.

At Larkhill and Springwood Estate 120 and 49 flats, respectively, have also been erected.

During the same period (1919-1931), 7,586 houses have been erected by private enterprise, and of these 4,294 were eligible for subsidy under the Housing Acts of 1923 and 1924.

RE-HOUSING IN OLD CITY AREA.

The number of dwellings provided by the Corporation up to the present is 3,659, their situations and dates of opening are as follows :—

Situation.	Date opened.	Number of tenements. (Including houses with shops attached)
St. Martin's Cottages	1869	124
Victoria Square	1885	270
Juvenal Dwellings	1891	101
Arley Street	{ 1897 } 1902/3	46
Gildart's Gardens	{ 1897 } 1904	229
Dryden Street	1901	182
Kempston Street	1902	79
Kew Street	1902/3	114
Adlington Street Area	1902/3	273
Stanhope Cottages	1904	60
Mill Street	1904	55
Hornby Street	{ 1904 } 1906/7	454
Clive Street and Shelley Street	1905	83
Eldon Street	1905	12
Upper Mann Street	1905/6	88
Combermere Street	1909	49
Burlington Street	1910	114
Saltney Street	1911	48
Grafton Street	1911	60
Bevington Street Area	1912	224
Northumberland Street Area	1913	68
St. Anne Street Area	1914	77
Gore Street	1916	24
Jordan Street	1916	31
Sparling Street	1916	16
Penrhyn Street	1921	26
Mason Street	1921	28
Blenheim Street	1923	18
Prince Edwin Street	1924	60
St. Augustine Street	1925	6
Bond Street	1925	24
Pitt Street	1928	48
South Hill Road	1928	198
Melrose Road	1929	260
Rankin Street	1929	46
Hopwood Street	1930	30
Holly Street	1931	31
Total	—	3,659

DESCRIPTION OF TENEMENTS.

Number of 1-roomed dwellings ...	196
Number of 2-roomed dwellings ...	1,471
Number of 3-roomed dwellings ...	1,474
Number of 4-roomed dwellings ...	518
	3,659

Number of self-contained dwellings (included in above)	173
Number of lock-up shops ...	21

RENTALS.

The rentals of the tenements vary from 2s. 6½d. to 10s. 5d., and those of the self-contained cottages from 8s. 10d. to 13s. 7½d. per week.

(Old City Area.)

VITAL STATISTICS.

Comparative Tables.

ALL DWELLINGS.

Population, 1925	.	..	...	...	13,786
Population, 1926	...	...	...	...	14,312
Population, 1927	...	...	...	...	14,437
Population, 1928	...	...	...	...	14,713
Population, 1929	...	...	...	...	14,572
Population, 1930	...	...	...	...	17,407

	1925.		1926.		1927.		1928.		1929.		1930.	
	Total number.	Rate per 1,000.	Total number	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.
Births	476	34.52	508	35.49	445	30.82	466	31.67	435	29.85	566	32.51
Deaths	258	18.71	258	17.32	256	17.73	257	17.46	321	22.03	238	13.67
Infantile Mortality	61	128.15	75	147.63	56	125.84	47	100.85	67	154.02	48	84.80
Deaths under 1 year		per 1,000 Births.		per 1,000 Births.		per 1,000 Births.		per 1,000 Births.		per 1,000 Births.		per 1,000 Births.
Phthisis	22	1.59	29	2.02	27	1.87	26	1.76	24	1.65	44	2.52

CORPORATION TENEMENTS.

(Old City Area.)

VITAL STATISTICS.**Comparative Tables.****RESTRICTED DWELLINGS.**

Population, 1925	...	...	...	11,683
Population, 1926	...	...	...	12,205
Population, 1927	...	...	...	12,337
Population, 1928	...	...	...	12,580
Population, 1929	...	...	...	12,416
Population, 1930	...	...	...	15,317

	1925.		1926.		1927.		1928.		1929.		1930.	
	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.
Births	399	34.15	432	35.39	380	30.80	378	30.04	363	29.23	491	32.04
Deaths	218	18.65	225	18.43	222	17.99	209	16.61	276	22.23	209	13.63
Infantile Mortality	51	127.81 per 1,000 Births.	67	155.09 per 1,000 Births.	49	128.94 per 1,000 Births.	36	95.23 per 1,000 Births.	60	165.29 per 1,000 Births.	46	93.68 per 1,000 Births.
Deaths under 1 year												
Phthisis	21	1.79	25	2.04	22	1.78	22	1.74	23	1.85	35	2.28

(Old City Area.)

VITAL STATISTICS.

Comparative Tablesⁿ

UNRESTRICTED DWELLINGS.

Population, 1925	...	...	...	...	2,103
Population, 1926	...	...	...	...	2,107
Population, 1927	...	...	...	...	2,100
Population, 1928	...	...	...	...	2,133
Population, 1929	...	...	...	...	2,156
Population, 1930	...	...	...	...	2,090

	1925.		1926.		1927.		1928.		1929.		1930.	
	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.	Total number.	Rate per 1,000.
Births	77	36.61	76	36.07	65	30.95	88	41.25	72	33.39	75	35.88
Deaths	40	19.02	33	15.66	34	16.19	48	22.50	45	20.87	29	13.87
Infantile Mortality	10	129.87	8	105.26	7	107.69	11	125.00	7	97.22	2	26.66
Deaths under 1 year		per 1,000 Births.		per 1,000 Births.		per 1,000 Births.		per 1,000 Births.		per 1,000 Births.		per 1,000 Births.
Phthisis	1	0.47	4	1.89	5	2.38	4	1.87	1	0.46	9	4.21

HOUSING ACT, 1930.

SECTION 17.

Statistics for the year ended 31st December, 1930 :—

Number of dwelling-houses inspected	2,010
Number of defects found... ..	12,534
Number of notices issued... ..	1,425

In the majority of cases the work has been carried out by the owners. A reference has been sent to the Town Clerk and Director of Housing, in respect to outstanding notices.

RETURN REQUIRED BY MINISTRY OF HEALTH,
YEAR ENDED 31ST DECEMBER, 1930.

GENERAL STATISTICS.

Area (acres)	24,772
Population	879,657
Number of inhabited houses	162,500
Number of families, or separate occupiers (1921 Census)	173,823
Rateable value	£6,418,518
Sum represented by a Penny Rate	£23,760

HOUSING.

Number of New Houses erected during the year :—

(a) Total	2,358
(b) With State Assistance under the Housing Acts, 1923 and 1924 :—	
(i) By the Local Authority	1,169
(ii) By other bodies or persons	20

1. UNFIT DWELLING-HOUSES.

Inspection—

(1) Total number of dwelling-houses inspected for housing defects (under Public Health or Housing Acts)	113,379
(2) Number of dwelling-houses which were inspected and recorded under the Housing (Inspection of District) Regulations, 1910	113,379
(3) Number of dwelling-houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation	1,832
(4) Number of dwelling-houses (exclusive of those referred to under the preceding sub- heading) found not to be in all respects reasonably fit for human habitation	Nil.

2. REMEDY OF DEFECTS WITHOUT SERVICE OF FORMAL NOTICES.

Number of defective dwelling-houses rendered fit in consequence of informal action by the Local Authority or their Officers	Nil.
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3. ACTION UNDER STATUTORY POWERS.

A.—*Proceedings under Section 17 of the Housing Act, 1930.*

(1) Number of dwelling-houses in respect of which notices were served requiring repairs	1,425
(2) Number of dwelling-houses which were rendered fit :—	
(a) by owners	1,459
(b) Referred to Town Clerk and Director of Housing and afterwards rendered fit by owners	333
(3) Number of dwelling-houses in respect to which notices were served and were not due to be re-inspected	147

B.—*Proceedings under Public Health Acts.*

(1) Number of dwelling-houses in respect of which notices were served requiring defects to be remedied	35,869
(2) Number of dwelling-houses in which defects were remedied—	
(a) by owners	35,869
(b) by Local Authority in default of owners	Nil.

C.—*Proceedings under Sections 11 to 15 of the Housing Act, 1925.*

(1) Number of representations made with a view to the making of Closing Orders	Nil.
(2) Number of dwelling-houses in respect of which Closing Orders were made	Nil.
(3) Number of dwelling-houses in respect of which Closing Orders were determined, the dwelling-houses having been rendered fit	Nil.
(4) Number of dwelling-houses in respect of which Demolition Orders were made	Nil.
(5) Number of dwelling-houses demolished in pursuance of Demolition Orders	Nil.

CITY BUILDING SURVEYOR'S DEPARTMENT.
RETURN OF HOUSES ERECTED 1926-1930.

NUMBER OF ROOMS, (Exclusive of Bathrooms, Sculleries, &c.)	1926	1927	1928	1929	1930
4 Rooms or less	3	1	103	1,161	612
5 or 6 Rooms	4,599	7,115	3,024	1,234	1,622
7 or 8 Rooms	225	173	136	183	118
9 or 10 Rooms	11	6	—	3	4
More than 10 Rooms	—	—	1	1	2
Totals	4,838	7,295	3,264	2,582	2,356

The numbers of houses which have been erected by or for the Housing Committee, and which form parts of Government-assisted schemes, during the last five years, are :—

1926 = 3,102.

1927 = 5,728.

1928 = 2,440.

1929 = 1,411.

1930 = 1,169 (includes 34 Tenement Dwellings).

RESIDENTIAL FLATS.—During 1930, 21 houses have been altered into 71 self-contained residential flats, giving a nett increase of 50 “houses” not included in the above table.

CITY BUILDING SURVEYOR'S DEPARTMENT.

NUMBER OF HOUSES ERECTED AND TAKEN DOWN DURING THE YEAR
ENDED DECEMBER, 1930.

DISTRICTS.						Number Erected.	Number Taken Down.
Exchange	...	...	...	...	...	64	111
Abercromby	...	...	...	...	...	—	10
Everton ...	...	...	...	...	...	2	24
Kirkdale...	...	...	...	...	...	—	19
Edge Hill	...	...	...	...	...	—	3
Toxteth ...	...	...	...	...	...	1	8
Walton ...	...	...	...	...	...	108	4
West Derby	...	...	...	...	...	588	35 *
Wavertree	...	...	...	...	...	724	2
Fazakerley	...	...	...	...	...	801	5
Woolton...	...	...	...	...	...	70	1
Totals ...						2,358	222

* Includes 15 hut-dwellings (originally Army huts) at Knotty Ash Encampment.

Of the 2,358 dwelling-houses erected during 1930, 1,169 were built under the direction of the Housing Committee, these forming parts of Government-assisted schemes, and including 34 Tenement Dwellings.

METEOROLOGY.

The Director to the Liverpool Observatory and Tidal Institute, Bidston, has kindly furnished the following tables relating to Meteorological observations made by him at the Observatory, Bidston :—

Latitude $53^{\circ} 24' N.$ Longitude $3^{\circ} 4' W.$

Height above the Mean Level of the Sea 202 feet.

1930.	Barometer. Mean.	Temperature. Mean.	RAINFALL.		Mean Humidity of the air (Complete Satura- tion equals 100).
			Amount.	No. of days on which .01 in. or more fell.	
	Inches.	Degrees.	Inches.		
January	29.621	41.3	4.171	22	84
February	30.169	37.1	0.200	6	80
March	29.818	40.9	2.948	19	81
April	29.823	45.8	2.992	22	81
May	29.960	50.8	0.912	18	76
June	29.978	58.8	1.740	10	73
July.....	29.819	58.3	4.768	17	81
August	29.842	58.1	5.191	24	82
September	29.945	56.2	2.612	16	84
October	29.751	51.0	4.224	24	75
November	29.804	44.3	3.856	18	81
December	29.851	41.0	3.890	19	87

DIFFERENCE FROM THE AVERAGE QUANTITIES OBSERVED DURING THE
LAST 64 YEARS.

1930.	BAROMETER.		TEMPERATURE.		RAINFALL.	
	Above Average.	Below Average.	Above Average.	Below Average.	Above Average.	Below Average
	Inches.	Inches	Degrees.	Degrees.	Inches.	Inches.
January	0.309	1.5	...	1.948	...
February	0.248	...	...	3.2	...	1.534
March	0.070	...	1.2	1.129	...
April	0.077	...	0.6	1.345	...
May	0.004	...	1.4	...	1.075
June.....	...	0.015	1.2	...	...	0.274
July	0.129	0.2	2.1	2.013	...
August	0.073	...	1.7	2.031	...
September	0.021	...	...	...	0.167
October.....	...	0.127	1.3	...	0.884	...
November	0.083	0.5	...	0.267	...
December.....	0.004	...	0.3	...	1.151	...
Year's Totals	0.055	...	0.5	8.718	...

MONTHLY ANALYSIS OF WIND OBSERVATIONS DURING 1930.
Compiled from observations taken at 0700, 1300, 1800 and 2100.

Force (0-12).					Direction							
1930	8 or more	4-7	1-3	Calm	N	NE	E	SE	S	SW	W	N.W
January ...	2	67	55	0	3	3	1	41	21	23	26	6
February ...	0	23	87	2	13	55	27	4	4	2	1	4
March ...	0	58	63	3	3	11	19	15	15	16	22	20
April ...	0	53	58	9	11	23	13	10	2	5	18	29
May ...	0	45	69	10	6	12	13	10	5	11	40	17
June ...	0	45	57	18	5	2	18	16	12	19	18	12
July ...	0	64	52	8	5	1	5	9	6	19	52	19
August ...	0	58	61	5	1	1	15	12	6	30	49	5
September ...	0	46	67	7	12	14	24	8	6	12	26	11
October ...	0	76	48	0	2	1	14	26	13	25	35	8
November ...	0	54	62	4	15	4	12	11	9	23	28	14
December ...	0	56	64	4	1	7	16	34	9	25	17	11
Year's Totals ...	2	645	743	70	77	134	177	196	108	210	332	156

1930 Week Ended		Baro- meter Mean	Temperature			Rainfall		Wind Mean direc- tion	Median Hum- idity %	Sun- shine hours	Ultra- Violet Radia- tion
			Maxi- mum	Mini- mum	Mean	Amt. inches	Dur- ation hours				
January	4	29.59	54.0	38.0	44.3	0.819	14.6	W	80.3	6.0	—
„	11	29.45	54.8	33.6	41.7	1.271	21.0	SW	79.6	16.0	—
„	18	29.73	54.7	30.5	43.9	1.055	24.1	W	85.3	8.3	—
„	25	29.74	56.8	31.0	42.3	0.634	14.9	SE	85.6	15.0	—
February	1	29.44	42.6	31.1	36.7	0.909	23.7	SE	89.5	18.8	—
„	8	29.81	43.1	32.2	37.6	—	—	NE	81.9	3.9	—
„	15	30.41	42.8	31.0	36.8	0.090	3.2	NE	78.4	11.3	—
„	22	30.42	40.4	25.3	34.2	—	—	NE	74.8	16.7	—
March	1	30.23	47.8	30.0	38.1	0.043	4.5	NE	84.2	7.0	—
„	8	30.19	50.8	35.6	43.8	0.618	18.2	ESE	84.5	19.0	—
„	15	29.47	47.8	32.0	37.4	1.263	42.9	WSW	82.0	17.8	—
„	22	29.50	45.2	30.0	36.7	0.980	27.6	NW	83.0	29.8	1.3
„	29	30.00	53.8	34.0	45.4	0.031	0.1	SE	75.6	26.5	1.0
April	5	29.63	58.9	34.3	46.7	1.295	34.4	SE	78.5	8.5	—
„	12	29.93	51.7	40.2	45.4	0.920	33.0	SW	86.3	21.2	—
„	19	29.86	48.8	38.1	44.0	1.023	3.6	NW	78.6	32.7	1.3
„	26	29.74	62.4	36.7	47.6	0.583	13.1	NW	81.8	24.4	—
May	3	30.03	60.0	40.4	50.2	0.051	0.8	NE	68.0	41.4	1.7
„	10	29.86	61.8	38.1	47.1	0.492	17.8	W	75.3	29.2	1.7
„	17	29.85	61.1	44.0	51.3	0.291	8.8	W	79.1	36.4	2.1
„	24	30.12	57.9	44.2	51.0	0.106	2.9	W	82.0	23.0	2.0
„	31	29.91	66.2	46.0	55.4	0.007	0.3	E	73.0	40.2	2.4
June	7	30.08	78.0	48.0	58.4	—	—	NW	74.4	60.2	3.4
„	14	30.05	72.6	46.8	57.4	0.705	10.7	W	74.8	31.2	1.6
„	21	30.04	73.0	52.4	61.9	0.456	8.4	E	76.2	34.8	2.0
„	28	29.76	67.8	46.2	56.4	0.551	3.8	W	70.1	62.4	3.4

1930 Week Ended	Baro- meter Mean	Temperature			Rainfall		Wind Mean direc- tion	Median Hum- idity %	Sun- shine hours	Ultra- Violet Radia- tion
		Maxi- mum	Mini- mum	Mean	Amt. inches	Dur- ation hours				
July 5	29.82	78.6	54.4	64.3	0.078	2.0	SE	70.5	63.0	3.6
„ 12	30.12	68.1	53.0	58.4	0.122	10.3	W	79.5	46.9	2.3
„ 19	29.53	66.1	52.7	57.8	2.26	25.7	W	86.6	13.8	1.1
„ 26	29.82	67.8	51.0	56.0	1.6	38.2	NW	81.9	11.2	1.0
August 2	29.59	68.0	47.9	59.0	1.283	10.6	SW	79.6	34.4	3.1
„ 9	29.68	67.6	49.0	57.3	1.606	18.3	W	82.4	48.9	3.7
„ 16	29.81	65.0	52.2	57.1	0.04	18.0	W	82.0	23.3	1.8
„ 23	29.77	65.8	48.0	57.0	1.346	24.9	W	78.5	31.8	2.9
„ 30	30.10	85.4	51.4	63.2	0.05	9.6	W	84.9	45.9	3.6
September 6	30.17	69.0	52.0	58.3	0.33	5.2	E	84.1	35.3	2.1
„ 13	29.98	62.2	54.0	57.7	0.76	21.6	NE	88.4	18.4	1.6
„ 20	29.62	62.0	45.3	54.9	1.17	24.4	E	86.0	24.2	1.3
„ 27	29.90	68.0	48.2	56.2	0.31	3.8	W	79.9	28.5	1.4
October 4	30.23	60.8	45.2	51.9	0.692	8.9	NE	80.9	5.0	—
„ 11	29.56	57.5	43.2	50.0	1.22	16.9	SW	77.3	41.3	2.0
„ 18	29.71	62.8	43.6	54.3	0.45	7.1	SE	80.8	24.6	1.7
„ 25	29.61	57.8	40.4	47.9	1.42	20.6	W	79.9	23.5	1.3
November 1	29.85	57.8	41.8	49.6	1.06	32.6	W	88.3	6.6	—
„ 8	29.76	55.2	32.0	43.9	0.79	13.1	W	77.5	29.1	1.3
„ 15	30.32	57.0	37.4	47.4	0.2	8.6	W	79.3	11.3	—
„ 22	29.68	53.2	31.2	43.1	1.61	29.8	E	81.9	9.0	—
„ 29	29.56	51.0	31.0	41.7	0.484	9.8	SW	82.3	9.9	1.1
December 6	30.23	46.2	33.4	39.9	0.01	2.0	E	89.2	2.5	—
„ 13	29.53	47.9	29.4	39.4	1.346	33.6	W	85.9	7.9	—
„ 20	30.06	53.1	36.0	42.6	0.598	24.6	W	91.8	11.7	—
„ 27	29.87	50.4	37.4	42.6	0.413	11.5	W	82.1	5.9	—

The Corporation of Liverpool makes yearly donations to the Royal Society for the Prevention of Cruelty to Animals, Liverpool Branch, and to the Liverpool Dogs' Home on account of the work done by those institutions, and the following brief extracts from their reports are, therefore, of interest.

LIVERPOOL CATS' SHELTERS.

Three depots, namely, 41, Russel Street, 90, Smith Street, Kirkdale, 230, Mill Street, Toxteth.

The statistics for the year 1930 showed a gross total of 30,806, which indicated a slight increase over the figure for the previous year. Of this very large total, just over 10,000 were recorded as diseased or injured to a greater or less degree, the affections being principally skin disease and accidents—injuries sometimes of a very serious and distressing kind. A Caretaker resides at each shelter, so that animals may be dealt with at any hour, in case of necessity. Unwanted cats and litters of kittens will be called for from private houses, where such are not within easy reach of one or other of the shelters, on receipt of a telephone call (Royal 4174) or on receipt of a post-card addressed to the Caretaker, Liverpool Cats' Shelter, 41, Russell Street. Litters of kittens should not be kept, unless good homes are certain.

LIVERPOOL HORSES' REST, BROAD GREEN

The year 1930 showed the record total of 106 animals received. Almost all were working horses and ponies belonging to humble owners in the city. A few shore donkeys from New Brighton and elsewhere were also grazed. Most of the animals were duly returned to their owners completely restored, and fit for their work.

LIVERPOOL ANIMALS' HOSPITAL, LARCH LEA, AND BRANCH AT 230, MILL STREET.

3,234 attendances were recorded during 1930, the work being done by qualified veterinary surgeons, acting in an honorary capacity, the animals being the property of owners who cannot afford to pay professional fees. The percentage of those cured and relieved was almost 90 per cent.

All the above institutions are conducted by the R.S.P.C.A., Liverpool Branch, 3, Crosshall Street, Liverpool. (Tel. No. Central 645.)

LIVERPOOL DOGS' HOME, EDGE LANE.

The total number of dogs dealt with at the Home in Edge Lane during 1930, was 10,639, showing a diminution of about 900 compared with the previous year. The Home is the recognised depot for the receipt of dogs found by the police in Liverpool and Bootle. Anyone who has therefore lost an animal should immediately visit the Home and make personal enquiries, because an exact description of a dog is not always easy to give. Unwanted dogs will be called for by one of the Home's motor vans, if it is too far to take them to Edge Lane, on receipt of a post-card addressed to the keeper, or of a telephone message (Old Swan 1340). Litters of puppies should not be allowed to grow up, unless good homes are assured for them. The arrangements for the comfort and well-being of the dogs are continually being improved. Selected animals are sold to suitable purchasers, who are always required to state the purpose for which they wish to buy.

CITY OF LIVERPOOL.

TABLE I.

VITAL STATISTICS OF WHOLE DISTRICT DURING 1930 AND PREVIOUS YEARS.

YEAR.	Population estimated to Middle of each year.	BIRTHS.			TOTAL DEATHS REGISTERED IN THE DISTRICT.		TRANSFERABLE DEATHS. ‡		NETT DEATHS BELONGING TO THE DISTRICT.			
		Uncor- rected Number.	Nett.						Under 1 year of age.		At all ages.	
			Number.	Rate.	Number.	Rate.	of Non- residents registered in the District.	of Resi- dents not registered in the District.	Number.	Rate per 1000 Nett Births.	Number. *	Rate.
1	2	3	4	5	*		8	9	*		*	
1925.....	842968	19587	19592	23·3	12391	14·7	898	409	1935	99	11902	14·1
1926.....	849593	19869	19792	23·3	12191	14·3	937	372	2066	104	11626	13·7
1927.....	856266	19175	19020	22·2	12443	14·4	975	406	1781	94	11874	13·9
1928.....	866000	19374	19120	22·1	12009	13·8	998	421	1789	94	11432	13·2
1929.....	872802	19162	18888	21·6	13781	15·8	1048	448	1822	96	13181	15·1
1930.....	879657	19199	18881	21·5	11882	13·5	993	399	1544	82	11288	12·8

NOTES.—This Table is arranged to show the gross births and deaths registered in the district during the calendar year, and the births and deaths properly belonging to it with the corresponding rates. The rates should be calculated per 1,000 of the estimated gross population as stated in Column 2, without the use of the standardising factor for the district given in the Annual Report of the Registrar-General. In a district in which large Public Institutions for the sick or infirm seriously affect the Statistics, the rates in Columns 5 and 13 may be calculated on a nett population, obtained by deducting from the estimated gross population the average number of inmates not belonging to the district in such institutions.

* In Column 6 are included the whole of the deaths registered during the calendar year as having actually occurred within the district.

In Column 12 is entered the number in Column 6, corrected by subtraction of the number in Column 8 and by addition of the number in Column 9. Deaths in Column 10 are similarly corrected by subtraction of the deaths under 1, included in the number given in Column 8, and by addition of the deaths under 1 included in the number given in Column 9.

‡ “Transferable Deaths” are deaths of persons who, having a fixed or usual residence in England or Wales, die in a district other than that in which they resided. The deaths of persons without fixed or usual residence, *e.g.*, casuals, are not included in Columns 8 or 9, except in certain instances under 3 (b) below. In Column 8 the number of transferable deaths of “non-residents” are deducted, and in Column 9 the number of deaths of “residents” registered outside the district are added in calculating the net death-rate of the district.

The following special cases arise as to Transferable Deaths :—

(1) Persons dying in Institutions for the sick or infirm, such as hospitals, lunatic asylums, workhouses, and nursing homes (but not almshouses) must be regarded as residents of the district in which they had a fixed or usual residence at the time of admission. If the person dying in an Institution had no fixed residence at the time of admission, the death is not transferable. If the patient has been directly transferred from one such institution to another, the death is transferable to the district of residence at the time of admission to the first Institution.

(2) The deaths of infants born and dying within a year of birth in an Institution to which the mother was admitted for her confinement should be referred to the district of fixed or usual residence of the parent.

(3) Deaths from violence are to be referred (a) to the district of residence, under the general rule ; (b) if this district is unknown, or the deceased had no fixed abode, to the district where the accident occurred, if known ; (c) failing this, to the district where death occurred, if known ; and (d) failing this, to the district where the body was found.

Area of District in acres
(land and inland
water) } 24,772.

Total population at all ages.....805,046) At Census
Total families or separate occupiers ...173,823) of
1921

TABLE II.
CITY OF LIVERPOOL.

Cases of Infectious Disease notified during the Year 1930.

NOTIFIABLE DISEASE	NUMBER OF CASES NOTIFIED.							
	At all Ages.	At Ages—Years						
		Under 1	1 to 5.	5 to 15.	15 to 25.	25 to 45.	45 to 65.	65 and upwards.
Small-pox	1	...	...	...	...	...	1	...
Plague ... ..	...	...	...	...	...	...	...	...
Diphtheria	4023	36	902	2402	444	213	22	4
Erysipelas	720	6	38	40	82	206	275	73
Scarlet fever	3069	23	878	1808	245	103	8	4
Typhus fever ... ..	...	...	...	...	...	...	...	...
Enteric fever	60	...	9	19	14	10	8	...
Puerperal fever	43	...	...	...	19	24	...	...
Do. Pyrexia... ..	125	...	...	...	35	90	...	...
Cerebro-Spinal Fever	21	13	5	1	2	...	...	...
Poliomyelitis and Polioencephalitis	14	2	4	4	3	1	...	...
Ophthalmia Neonatorum	610	610	...	...	...	...	...	...
Pulmonary Tuberculosis	2479	7	91	478	486	836	504	77
Tuberculosis other than Pulmonary	719	16	162	277	131	103	26	4
Anthrax	3	...	...	...	...	1	2	...
Measles and German Measles	5965	397	2506	3007	56	...	...	...
Pneumonia and Influenzal Pneumonia	2545	316	849	464	249	321	259	87
Malaria	125	...	...	...	41	51	31	2
French Fever ... ..	...	...	...	...	...	...	...	...
Dysentery	27	5	5	5	8	4	...	...
Encephalitis Lethargica... ..	27	...	1	3	7	10	4	2
Totals	20577	1431	5450	8508	1822	1973	1140	253

TABLE III.
CITY OF LIVERPOOL.
Causes of, and ages at, Death during the Year 1930.

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[illegible]

TABLE IV.

CITY OF LIVERPOOL.

INFANT MORTALITY DURING THE YEAR 1930.

Nett Deaths from stated Causes at various Ages under One Year of Age.

CAUSE OF DEATH.								Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 4 Weeks.	4 Weeks and under 3 Months.	3 Months and under 6 Months.	6 Months and under 9 Months.	9 Months and under 12 Months.	Total Deaths under One Year.
All Causes.	Certified	...	...	...	...	...	...	398	86	69	50	603	282	266	191	182	1524
	Uncertified	...	...	...	...	...	...	13	1	1	2	17	2	—	—	1	20
Small-pox	...	...	...	...	...	...	...	—	—	—	—	—	—	—	—	—	—
Chicken-pox	...	...	...	...	...	...	...	—	—	—	—	—	2	—	—	—	2
Measles	...	...	...	...	...	...	...	—	—	—	—	—	1	2	14	28	45
Scarlet Fever	...	...	...	...	...	...	...	—	—	—	—	—	—	1	2	—	3
Whooping Cough	...	...	...	...	...	...	...	—	—	—	—	—	6	11	8	11	36
Diphtheria	...	...	...	...	...	...	...	—	—	—	—	—	—	—	1	3	4
Influenza	...	...	...	...	...	...	...	—	—	—	—	—	2	—	—	—	2
Erysipelas	...	...	...	...	...	...	...	—	—	—	—	—	—	1	—	1	2
Tuberculous Meningitis	...	...	...	...	...	...	...	—	—	—	—	—	1	1	3	8	13
Abdominal Tuberculosis	...	...	...	...	...	...	...	—	—	—	—	—	—	—	1	—	1
Other Tuberculous Diseases	...	...	...	...	...	...	...	—	—	—	—	—	1	—	—	1	2
Meningitis	...	...	...	...	...	...	...	1	1	—	—	2	3	4	4	5	18
Convulsions	...	...	...	...	...	...	...	15	3	1	4	23	6	—	6	1	36
Laryngitis	...	...	...	...	...	...	...	—	—	—	—	—	1	1	—	1	3
Bronchitis	...	...	...	...	...	...	...	2	5	8	4	19	23	29	10	7	88
Pneumonia (all forms)	...	...	...	...	...	...	...	2	6	5	16	29	83	72	68	68	320
Diarrhoea	...	...	...	...	...	...	...	—	—	3	—	3	6	7	4	2	22
Enteritis	...	...	...	...	...	...	...	2	6	3	4	15	54	78	36	26	209
Gastritis	...	...	...	...	...	...	...	—	—	—	—	—	—	1	—	—	1
Syphilis	...	...	...	...	...	...	...	—	1	1	1	3	6	—	1	—	10
Rickets	...	...	...	...	...	...	...	—	—	—	—	—	—	1	—	1	2
Suffocation,	...	...	...	...	...	...	...	5	—	—	—	5	3	3	—	1	12
Injury at Birth	...	...	...	...	...	...	...	22	2	1	—	25	—	—	—	—	25
Atelectasis	...	...	...	...	...	...	...	37	1	3	1	42	2	1	—	—	45
Congenital Malformations	...	...	...	...	...	...	...	23	13	4	3	43	14	7	6	1	71
Premature Birth	...	...	...	...	...	...	...	250	36	21	9	316	30	4	—	1	351
Atrophy, Debility and Marasmus...	...	...	...	...	...	...	...	35	8	14	6	63	29	30	14	5	141
Other Causes	...	...	...	...	...	...	...	17	5	6	4	32	11	12	13	12	80
								411	87	70	52	620	284	266	191	183	1544

Nett Births in the year { Legitimate ... 18,002
 { Illegitimate ... 879

Nett Deaths in the year of { Legitimate Infants 1,404
 { Illegitimate Infants 140

LIVERPOOL

FAZAKERLEY

B.R. 32.8
D.R. 10.3
I.M. 74
Pop. 8.3

WOOLTON

B.R. 12.0
D.R. 10.4
I.M. 22
Pop. 3.4

WEST DERBY

B.R. 18.3
D.R. 11.5
I.M. 65
Pop. 33.0

WAVERTREE

B.R. 16.1
D.R. 10.6
I.M. 56
Pop. 16.3

WALTON

B.R. 15.7
D.R. 11.5
I.M. 76
Pop. 48.3

EDGE HILL

B.R. 20.3
D.R. 12.1
I.M. 79
Pop. 138.0

EVERTON

B.R. 23.8
D.R. 13.1
I.M. 78
Pop. 173.7

TOXTETH

B.R. 22.2
D.R. 13.5
I.M. 78
Pop. 64.4

KIRKDALE

B.R. 22.4
D.R. 14.6
I.M. 103
Pop. 93.9

ABERCROMBY

B.R. 19.9
D.R. 14.4
I.M. 92
Pop. 67.0

EXCHANGE

B.R. 29.5
D.R. 16.8
I.M. 113
Pop. 97.7



BOOTLE

1930

Population 879,657

Birth Rate for whole City	-	21.5
Death Rate for whole City	-	12.8
Infantile Death Rate per 1,000 Births	-	82
Population per acre, whole City	-	36.8

Diagram showing Birth Rate (B.R.) per 1,000 of estimated population.
" " Death " (D.R.) " " " " number of deaths of Infants under One Year out of every 1,000 born (I.M.)
" " estimated population per acre, excluding Docks and Quays and including Parks and Open Spaces (Pop.)

In each of the districts of the City during 1930.

LIVERPOOL

FAZAKERLEY

Pop	1,000
LM	10.5
DE	10.5
BE	10.5

WEST DERBY

WALTON

Pop	1,000
LM	10.5
DE	10.5
BE	10.5

KIRKDALE

Pop	1,000
LM	10.5
DE	10.5
BE	10.5

BOOTLE



DEATHS REGISTERED IN THE CITY OF LIVERPOOL.
DURING THE YEAR 1930.

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